INFINITY NF-ULTRA-M2

INFINITY NF-M2

System Board User's Manual

935-NF4UM1-000G
92510626

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2. Shielded interface cables must be used in order to comply with the emission limits.

Table of Contents

About this Manual

An electronic file of this manual is included in the CD. To view the user's manual, insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. Click the "TOOLS" icon then click "Manual" on the main menu.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

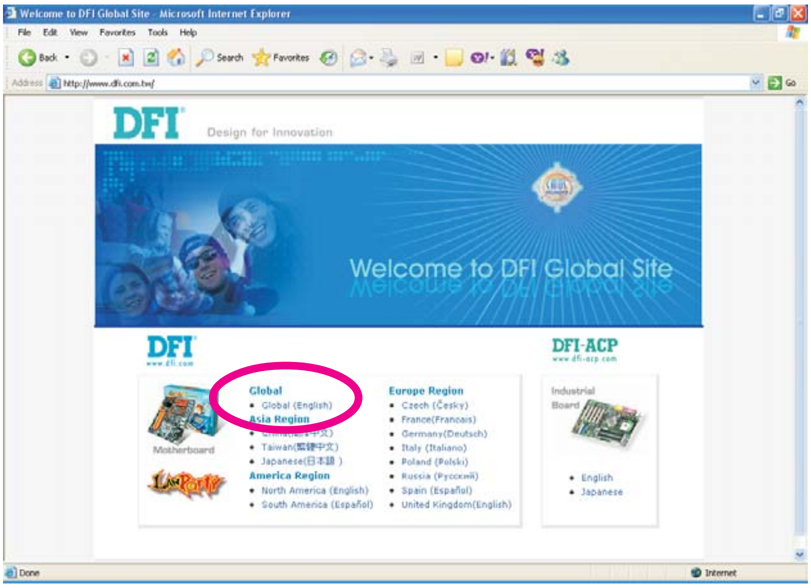
3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequencial damages to the product that has been modified or altered.

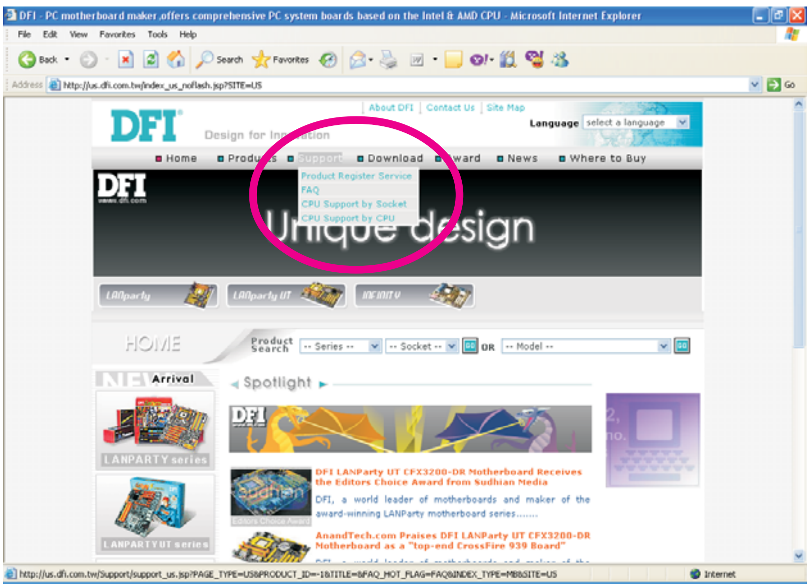
Registering the Product

We encourage you to register your DFI product online. DFI's product registration service entitles you to notifications about product updates, special discounts and/or promotional offers; and puts your licensing information on file so that we may efficiently assist you if in any case needed. Please follow the steps below to access the product registration page.

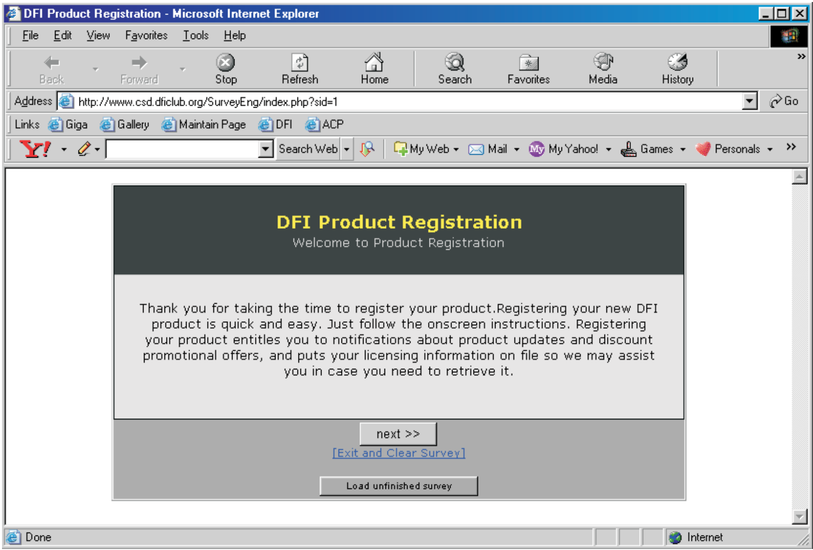
1. Run Internet Explorer then type www.dfi.com.tw in the Address bar. On DFI's homepage, click Global or the language of your choice.



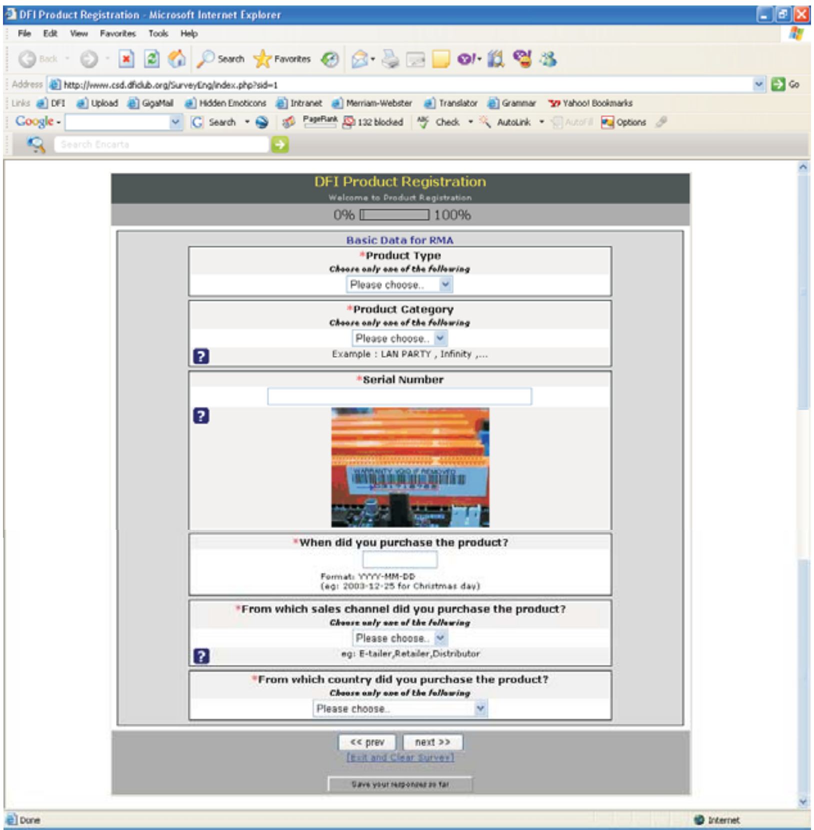
2. Click the Support menu then select Product Register Service.



3. The DFI Product Registration page will appear. Click Next to continue.



4. Select or fill in the necessary information to complete the registration.



5. Thank you for registering your DFI product.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:
Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
- Use the correct AC input voltage range.

To reduce the risk of electric shock:
- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to the battery manufacturer's instructions.

About the Package

The system board package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

- ☑ One system board
- ☑ One IDE cable
- ☑ One floppy cable
- ☑ Two Serial ATA data cables
- ☑ One Serial ATA power cable
- ☑ One I/O shield
- ☑ One RAID driver diskette
- ☑ One "Mainboard Utility" CD
- ☑ One user's manual

The system board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System Board

Before using the system board, prepare basic system components.

If you are installing the system board in a new system, you will need at least the following internal components.

- A CPU
- Memory module
- Storage devices such as hard disk drive, CD-ROM, etc.

You will also need external system peripherals you intend to use which will normally include at least a keyboard, a mouse and a video display monitor.

Chapter 1 - Introduction

Specifications

Processor	• AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ • Socket AM2
Front Side Bus	• 2000MT/s HyperTransport interface
Chipset	• NVIDIA nForce4™ Ultra (INFINITY NF ULTRA-M2) NVIDIA nForce4™ (INFINITY NF-M2)
System Memory	• Four 240-pin DDR2 DIMM sockets • Supports DDR2 533 and DDR2 667 DIMMs • Supports dual channel (128-bit wide) memory interface • Supports up to 4GB system memory • Supports unbuffered non-ECC x8 and x16 DIMMs
Expansion Slots	• 1 PCI Express x16 slot • 2 PCI Express x1 slots • 3 PCI slots
BIOS	• Award BIOS • 4Mbit flash memory
Power Management	• ACPI and OS Directed Power Management • ACPI STR (Suspend to RAM) function • Wake-On-PS/2 Keyboard/Mouse • Wake-On-USB Keyboard/Mouse • Wake-On-LAN • Wake-On-Ring • RTC timer to power-on the system • AC power failure recovery
Hardware Monitor	• Monitors CPU/system/chipset temperature • Monitors 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip voltages • Monitors the speed of the cooling fans • CPU Overheat Protection function monitors CPU temperature during system boot-up
Audio	• Realtek ALC655 6-channel AC'97 audio CODEC • True stereo line level outputs • S/PDIF-in/out interface
LAN	• Realtek RTL8111 Gigabit PCIE LAN • Fully compliant to IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T) standards

IDE with NVIDIA RAID	• Supports two IDE connectors that allow connecting up to four UltraDMA 133Mbps hard drives • NVIDIA RAID allows RAID arrays spanning across Serial ATA and Parallel ATA • RAID 0, RAID 1, RAID 0+1 and JBOD
Serial ATA with RAID	• Four Serial ATA ports • SATA speed up to 3Gb/s (INFINITY NF ULTRA-M2) SATA speed up to 1.5Gb/s (INFINITY NF-M2) • NVIDIA RAID allows RAID arrays spanning across Serial ATA and Parallel ATA • RAID 0, RAID 1, RAID 0+1 and JBOD
IEEE 1394	• VIA VT6307 • Supports two 100/200/400 Mb/sec ports
Rear Panel I/O	• 1 mini-DIN-6 PS/2 mouse port • 1 mini-DIN-6 PS/2 keyboard port • 1 RCA S/PDIF-in port • 1 RCA S/PDIF-out port • 1 parallel port • 1 COM port • 1 IEEE 1394 port • 1 RJ45 LAN port • 4 USB 2.0/1.1 ports • Line-in, line-out and mic-in jacks
Internal I/O	• 3 connectors for 6 additional external USB 2.0/1.1 ports • 1 connector for 1 external IEEE 1394 port • 1 front audio connector for external line-out and mic-in jacks • 1 CD-in internal audio connector • 1 S/PDIF connector for optical cable connection • 1 IrDA connector • 4 Serial ATA connectors • 2 IDE connectors • 1 floppy connector • 1 24-pin ATX power connector • 1 4-pin ATX 12V power connector • 1 front panel connector • 3 fan connectors
PCB	• ATX form factor • 22cm (8.66") x 30.5cm (12")

Features

The system board supports the AMD Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ processor for Socket AM2. AMD Athlon™ 64 provides superior computing for many software applications by allowing both 32-bit and 64-bit applications to run simultaneously on the same platform. The operating system and software are able to process more data and access a tremendous amount of memory which improves the overall system performance.

2T timing which provides better system stability is supported in CG or later revisions of the AMD Athlon™ 64 processor. You can select the memory timing in the Genie BIOS Setting submenu ("DRAM Configuration" section) of the BIOS.

The AMD Cool'n'Quiet™ technology allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by lowering its CPU speed and voltage, subsequently decreasing its noise level.

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The system board currently supports the physical layer of x1 and x16 lane widths. The x1 PCI Express lane supports transfer rate of 2.5 Gigabytes (250MBbps) per second. The PCI Express architecture also provides a high performance graphics infrastructure by enhancing the capability of a x16 PCI Express lane to provide 4 Gigabytes per second transfer rate.

CPU Overheat Protection

CPU Overheat Protection has the capability of monitoring the CPU's temperature during system boot up. Once the CPU's temperature exceeded the temperature limit pre-defined by the CPU, the system will automatically shutdown. This preventive measure has been added to protect the CPU from damage and insure a safe computing environment.

667 DDR2

DDR2 is a higher performance DDR technology whose data transfer rate delivers bandwidth of 4.3 GB per second and beyond. That is twice the speed of the conventional DDR without increasing its power consumption. DDR2 SDRAM modules work at 1.8V supply compared to 2.6V memory voltage for DDR modules. DDR2 also incorporates new innovations such as the On-Die Termination (ODT) as well as larger 4-bit pre-fetch against DDR which fetches 2 bits per clock cycle.

6CH Audio

The onboard Realtek ALC655 is an AC'97 compatible audio codec that will support 6-channel audio only when the audio utility is configured to support this function. The mic-in at the rear will be disabled. Use the front audio's mic-in jack.

S/PDIF is a standard audio file transfer format that transfers digital audio signals to a device without having to be converted first to an analog format. This prevents the quality of the audio signal from degrading whenever it is converted to analog. S/PDIF is usually found on digital audio equipment such as a DAT machine or audio processing device. The S/PDIF connector on the system board sends surround sound and 3D audio signal outputs to amplifiers and speakers and to digital recording devices like CD recorders.

Serial ATA is a storage interface that is compliant with SATA 1.0 specification. The system board supports 4 Serial ATA ports with speed of up to 3Gb/s (INFINITY NF ULTRA-M2) or 1.5Gb/s (INFINITY NF-M2). Serial ATA improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

The south bridge chip supports NVIDIA RAID (Redundant Array of Independent Disk) that allows RAID arrays spanning across 4 Serial ATA and Parallel ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and JBOD.

The Realtek RTL8111 Gigabit PCIE LAN chip supports up to 1Gbps.

IEEE 1394 is fully compliant with the 1394 OHCI (Open Host Controller Interface) 1.1 specification. It supports up to 63 devices that can run simultaneously on a system. 1394 is a fast external bus standard that supports data transfer rates of up to 400Mbps. In addition to its high speed, it also supports isochronous data transfer which is ideal for video devices that need to transfer high levels of data in real-time. 1394 supports both Plug-and-Play and hot plugging.

IrDA

The system board is equipped with an IrDA connector for wireless connectivity between your computer and peripheral devices. The IRDA (Infrared Data Association) specification supports data transfers of 115K baud at a distance of 1 meter.

2.0 USB

The system board supports USB 2.0 and USB 1.1 ports. USB 1.1 supports 12Mb/second bandwidth while USB 2.0 supports 480Mb/second bandwidth providing a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Wake-On-Ring

This feature allows the system that is in the Suspend mode or Soft Power Off mode to wake-up/power-on to respond to calls coming from an external modem or respond to calls from a modem PCI card that uses the PCI PME (Power Management Event) signal to remotely wake up the PC.

Important:
If you are using a modem add-in card, the 5VSB power source of your power supply must support a minimum of ≥720mA.

Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.

Important:
The 5VSB power source of your power supply must support ≥720mA.

Wake-On-PS/2

This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

Important:
The 5VSB power source of your power supply must support ≥720mA.

Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.

RTC

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. Currently, only Windows® 2000/XP supports the ACPI function. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows® 2000/XP without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

Important:

The 5VSB power source of your power supply must support ≥1A.

Power Failure Recovery

When power returns after an AC power failure, you may choose to either power-on the system manually, let the system power-on automatically or return to the state where you left off before power failure occurs.

Caractéristiques et Spécifications

Processeur	• AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ • Socket AM2 • Interface HyperTransport 2000MT/s
Chipset	• NVIDIA nForce4™ Ultra (INFINITY NF ULTRA-M2) NVIDIA nForce4™ (INFINITY NF-M2)
Mémoire Système	• 4 socles DIMM DDR2 240-pin • Supporte DDR2 533 et DDR2 667 DIMMs • Supporte l'interface de mémoire deux canaux (128-bit) • Supporte jusqu'à 4 GB de mémoire système • Supporte exclusivement les modules DIMM non-ECC x8 et x16 • Supporte les DIMM non-tamponnés
Logements d'Extension	• 1 slot PCI Express x16 • 2 slots PCI Express x1 • 3 slots PCI
BIOS	• Compatible avec Award BIOS • Mémoire Flash 4Mbit
Gestion de Puissance	• ACPI et OS Directed Power Management • ACPI STR (Suspend to RAM) fonction • Réveil-Sur-PS/2 Clavier/Souris • Réveil-Sur-USB Clavier/Souris • Eveil Sonnerie • Réveil Par Le Réseau • Minuterie RTC pour allumer le système • Récupération après Défaillance d'Alimentation CA
Fonctions de Moniteur de Matériel	• Gère l'alarme de température et de surchauffe de CPU/système/chipset • Gère l'alarme de voltage et d'échec de 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip • Gère la vitesse de ventilateur du ventilateur • Protection du CPU - supporte la mise hors circuit automatique en cas de surchauffage du système
Audio	• AC'97 CODEC Realtek ALC655 6-canaux • Sorties de niveau de lignes stéréo vraies • Interface entrée/sortie S/PDIF
LAN	• Realtek RTL8111 Gigabit PCIE LAN • Supporte IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) et 802.3ab (1000BASE-T)

IDE avec NVIDIA RAID	• Supporte des disques durs jusqu'à UltraDMA 133Mbps • NVIDIA RAID permet des ensembles RAID sur toute l'étendue du port de série ATA et du parallèle ATA • RAID 0, RAID 1, RAID 0+1 et JBOD
Serial ATA avec RAID	• 4 ports de série ATA • Vitesse SATA jusqu'à 3Gb/s (INFINITY NF ULTRA-M2) Vitesse SATA jusqu'à 1.5Gb/s (INFINITY NF-M2) • NVIDIA RAID permet des ensembles RAID sur toute l'étendue du port de série ATA et du parallèle ATA • RAID 0, RAID 1, RAID 0+1 et JBOD
IEEE 1394	• VIA VT6307 • Supporte 2 100/200/400 Mb/sec ports
Panneau Arrière I/O	• 1 port souris PS/2 • 1 port clavier PS/2 • 1 port RCA S/PDIF-in • 1 port RCA S/PDIF-out • 1 port parallèle DB-25 • 1 port de DB-9 série • 1 port IEEE 1394 • 1 port RJ45 LAN • 4 ports USB 2.0/1.1 • Line-in, line-out (front R/L) et mic-in prises audio
Interne I/O	• 3 connecteurs pour 6 ports USB 2.0/1.1 supplémentaires • 1 connecteur pour 1 IEEE 1394 • 1 connecteur audio frontal pour les jacks de sortie externe et d'entrée micro • 1 connecteur CD-in audio internes • 1 S/PDIF l'assemblage pour l'adjonction de câble optique • 1 connecteur IR • 4 ports de Série ATA • 2 connecteurs IDE • 1 connecteur de FDD • 1 connecteur d'alimentation 24-pin ATX • 1 connecteur d'alimentation 4-pin 12V ATX • 1 connecteur devant panneau • 3 connecteurs de ventilateurs
PCB	• Facteur de forme de ATX • 22cm (8.66") x 30.5cm (12")

Deutsch

Leistungsmerkmale und Technische Daten

Prozessor	• AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ • Socket AM2 • Interface HyperTransport 2000MT/s
Chipset	• NVIDIA nForce4™ Ultra (INFINITY NF ULTRA-M2) NVIDIA nForce4™ (INFINITY NF-M2)
Systemspeicher	• 4 Sockel 240-pin DDR2 DIMM • Unterhält DDR2 533 und DDR2 667 DIMMs • Unterhält 128-bit – Speiher mit den zwei Kanälen • Unterhält bis zum 4GB-Systemspeicher • Unterhält nur non-ECC x8 und x16 DIMMs • Unterhält DIMMs ohne Dämpfer
Expansion Schlitz	• 1 PCI Express x16-Einbauplätzen • 2 PCI Express x1-Einbauplätzen • 3 PCI-Einbauplätzen
BIOS	• Kompatibilität mit Award BIOS • Flash-Speicher (4Mbit)
Energie Management	• ACPI und OS Directed Power Management • ACPI STR (Suspend to RAM) funktion • Wecken bei Betätigung der PS/2 Tastatur/Maus • Wecken bei USB-Tastatur/Maus • Wecken bei Klingeln • Wecken des Systems durch das Netzwerk • RTC-Taktgeber zum Einschalten des Systems • Wiederherstellung der Wechselstromversorgung nach einem Ausfall
Kleinteilmonitor	• Überwachung der Temperatur des CPU/Systems/Chipset sowie Warnsignal bei Überhitzung • Überwachung der Spannungen des 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip • Überwachung der Geschwindigkeit des Ventilators • Prozessor-Shutz - Die Ausschaltung bei der Überhitzung – die automatische Ausschaltung des Computers bei der Überhitzung
Audio	• Realtek ALC655 6-Kanal, AC'97 Codec • Naturgetreue Stereo-Leitungspegel-Ausgabe • S/PDIF-In/Aus-Schnittstelle
LAN	• Realtek RTL8111 Gigabit PCIE LAN • Unterstützt IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) und 802.3ab (1000BASE-T)

IDE mit NVIDIA RAID	• Unterstützung der Festplatten bis zum UltraDMA 133Mbps • NVIDIA RAID ermöglicht, dass die RAID-Arrays sowohl serielle als auch parallele ATA-Schnittstellen umfassen. • RAID 0, RAID 1, RAID 0+1 und JBOD
Serial ATA mit RAID	• 4 serielle Serial ATA-Ports • SATA bis zu 3Gb/s schnell (INFINITY NF ULTRA-M2) SATA bis zu 1.5Gb/s schnell (INFINITY NF-M2) • NVIDIA RAID ermöglicht, dass die RAID-Arrays sowohl serielle als auch parallele ATA-Schnittstellen umfassen. • RAID 0, RAID 1, RAID 0+1 und JBOD
IEEE 1394	• VIA VT6307 • Unterstützt 2 100/200/400 Mb/sec porte
Porte an der Rückwand	• 1 Mini-DIN-6-Anschluß für eine PS/2-Maus • 1 Mini-DIN-6-Anschluß für eine PS/2-Tastatur • 1 S/PDIF-in RCA-Anschlüsse • 1 S/PDIF-out RCA-Anschlüsse • 1 Parallel-Anschlüsse • 1 serieller DB-9-Anschlüsse • 1 IEEE 1394-Anschlüsse • 1 RJ45 LAN-Anschlüsse • 4 USB 2.0/1.1-Anschlüsse • Line-in, line-out (front R/L) und mic-in Audio-Anschlußbuchsen
Internes I/O	• 3 Anschlußfassung für 6 zusätzliche externe USB 2.0/1.1-Anschlüsse • 1 Anschluß für eine externe IEEE 1394 Schnittstelle • 1 Front-Audioanschluss für externe Mikrofon-Ein- und –Ausgänge • 1 CD-in interne Audioanschlüsse • 1 S/PDIF Anschluß für die Verbindung des optischen Kabel • 1 Anschluß für die IR-Schnittstelle • 4 serielle Serial ATA-Ports • 2 IDE-Anschlüsse • 1 Floppy-Anschlüsse • 1 24-polige Anschlußstecker für das ATX-Netzgerät • 1 4-polige 12V Anschlußstecker für das ATX-Netzgerät • 1 Vorderseite Füllung Anschlüsse • 3-ventilator-Anschlüsse
PCB	• ATX Formfaktor • 22cm (8.66") x 30.5cm (12")

Características y Especificaciones

Procesador	• AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ • Socket AM2 • Interface de HyperTransport 2000MT/s
Chipset	• NVIDIA nForce4™ Ultra (INFINITY NF ULTRA-M2) NVIDIA nForce4™ (INFINITY NF-M2)
Memoria de Sistema	• 4 240-pin DDR2 DIMM asientos • Suporta DDR2 533 y DDR2 667 DIMMs • Soporta memoria de dos canales (128-bit) • Soporta hasta 4GB de memoria sistémica • Soporta sólo non-ECC x8 y x16 DIMM • Soporta unbuffered DIMM
Ranuras de Expansión	• 1 slot PCI Express x16 • 2 slots PCI Express x1 • 3 slots PCI
BIOS	• Award BIOS • Memoria Instante (4Mbitios)
Gerencia de la Energía	• ACPI y OS Directed Power Management • ACPI STR (Suspend to RAM) función • PS/2 Teclado/Ratón de Wake-On • USB Teclado/Ratón de Wake-On • Wake-On-LAN • Wake-On-Ring • Temporizador de RTC para encender el sistema • Recuperación de Fracaso de Energía AC
Monitor del Hardware	• Monitores de los CPU/sistema/chipset temperaturas y alarma acalorada. • Monitores de voltajes de 12V/5V/3.3V/Vcore/Vbat/5Vsb/Vdimm/Vchip • Vigila la velocidad del abanico del abanido • Protección del procesador - Desconección en caso de recalentamiento –el ordenador se desconecta automáticamente en caso de recalentamiento
Audio	• Realtek ALC655 6-canal AC'97 CODEC • Auténtico salidas de nivel de línea estéreo • Interfáz de S/PDIF-in/out
LAN	• Realtek RTL8111 Gigabit PCIE LAN • Soporta IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) y 802.3ab (1000BASE-T)

IDE con NVIDIA RAID	• Soporta las unidades duras hasta de UltraDMA 133Mbps • NVIDIA RAID permite RAID órdenes atravesando Serial ATA y Parallel ATA • RAID 0, RAID 1, RAID 0+1 y JBOD
Serial ATA con RAID	• 4 ports de Serial ATA • SATA se acelera a 3Gb/s (INFINITY NF ULTRA-M2) SATA se acelera a 1.5Gb/s (INFINITY NF-M2) • NVIDIA RAID permite RAID órdenes atravesando Serial ATA y Parallel ATA • RAID 0, RAID 1, RAID 0+1 y JBOD
IEEE 1394	• VIA VT6307 • Soporta 2 ports 100/200/400 Mb/sec
Panel Trasero I/O	• 1 puerto de ratón PS/2 • 1 puerto de teclado PS/2 • 1 puerto de S/PDIF-in RCA • 1 puerto de S/PDIF-out RCA • 1 puerto paralelo de DB-25 • 1 puerto de serie DB-9 • 1 puerto de IEEE 1394 • 1 puerto de RJ45 LAN • 4 puertos de USB 2.0/1.1 • Line-in, line-out (front R/L) y mic-in enchufes de audio
Conectador Interno	• 3 conectores para 6 puertos de USB 2.0/1.1 externo adicional • 1 conector para un puerto de IEEE 1394 • 1 connector de sonido delantera por linea externa y micrófono interno • 1 conector de CD-in audio interno • 1 S/PDIF mortaja para conección de cable óptico • 1 conector de IR • 4 ports de Serial ATA • 2 conector de IDE • 1 conector de FDD • 1 conector 24-pin de fuente de alimentación de ATX • 1 conector 4-pin 12V de fuente de alimentación de ATX • 1 conector de panel delante • 3 conectores de abanicos
PCB	• ATX forme el factor • 22cm (8.66") x 30.5cm (12")

Русский язык

Характеристики и свойства

Процессор	• AMD® Athlon™ 64 X2 / Athlon 64 FX / Athlon™ 64 / Sempron™ • гнездо AM2 • Интерфейс системной шины 2000MT/s
Чипсет	• NVIDIA nForce4™ Ultra (INFINITY NF ULTRA-M2) NVIDIA nForce4™ (INFINITY NF-M2)
Оперативная Память	• 4 240-pin DDR2 DIMM гнезда • Поддерживает DDR2 533 и DDR2 667 DIMMs • Поддерживает двухканальную память (128-бит) • Поддерживает до 4ГБ системной памяти • Поддерживает только non-ECC x8 и x16 DIMM • Поддерживает небуфф. DIMM
управление силы	• 1 PCI Express x16 слотов • 2 PCI Express x1 слотов • 3 PCI слотов
BIOS	• Award BIOS • 4Mbit Flash Память
управление силы	• ACPI и OS Directed Power Management • ACPI STR (Suspend to RAM) • Активизация На Движение Мыши • Активизация На Нажатие Кнопки USB Клавиатуры • Активизация На Входящий Звонок • Активизация На Сетевое Событие • RTC Таймер для Включения Системы • Скачки Напряжения
монитор оборудования	• Мониторинг температуры процессора/системы/ Чипсет • Мониторинг напряжений 12V/5V/3.3V/Vcore/Vbat/ 5Vsb/Vdimm/Vchip • Мониторинг скорости вращения вентилятора • Защита процессора - Выключение при перегреве – автоматическое выключение компьютера при перегреве
тональнозвуково	• Полнодуплексный Realtek ALC655 AC'97 codec 6-и канальный звуковой выход • Настоящий линейный стерео выход • интерфейса S/PDIF-in/out

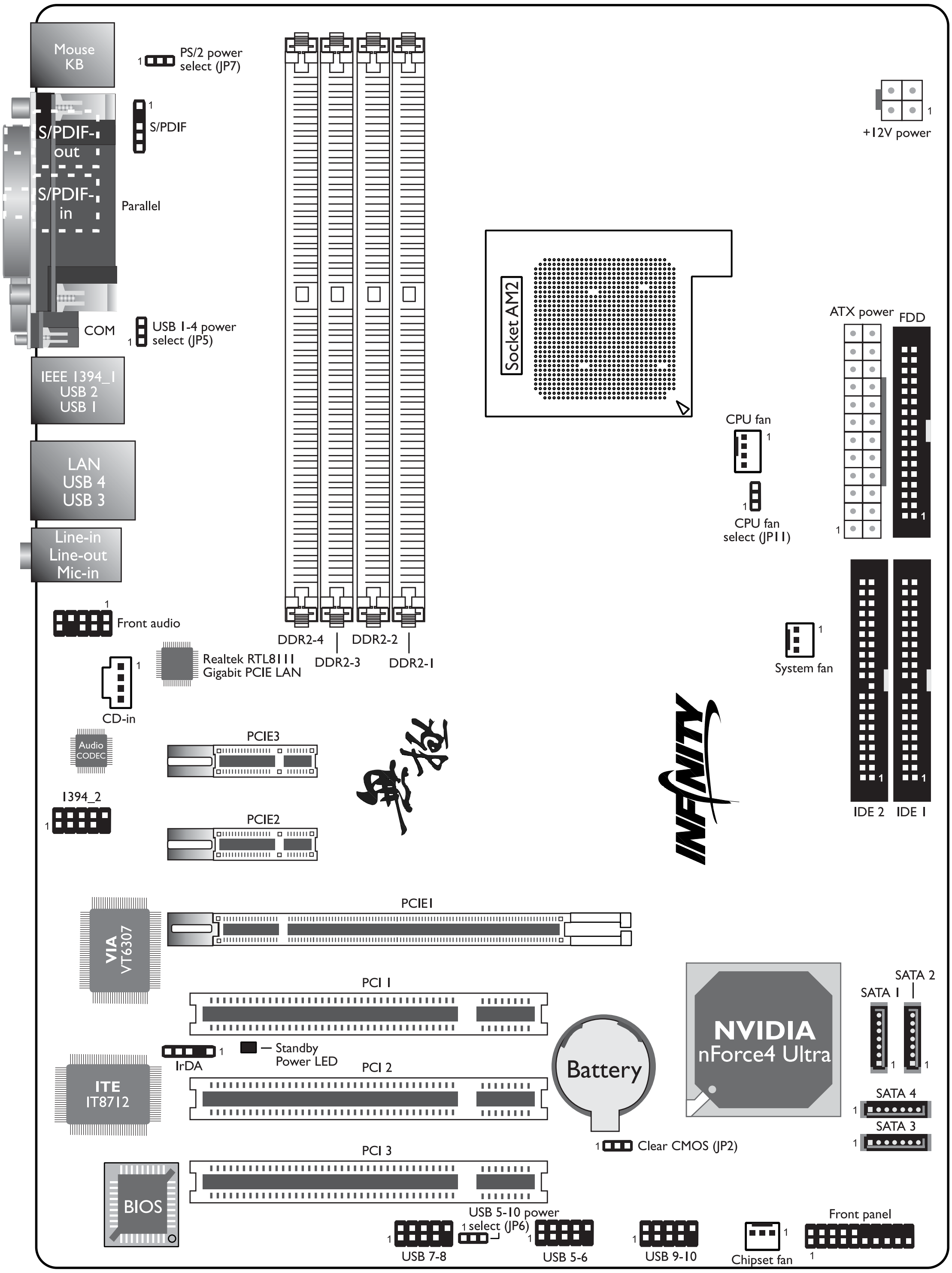
LAN	• Realtek RTL8111 Gigabit PCIE LAN • Поддержка IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX) и 802.3ab (1000BASE-T)
IDE с NVIDIA RAID	• Поддерживает жесткие диски до UltraDMA 133Mbps • NVIDIA RAID позволяет создавать массивы RAID через Serial ATA и Parallel ATA • RAID 0, RAID 1, RAID 0+1 и JBOD
Serial ATA с RAID	• 4 порта Serial ATA • Скорость SATA до 3 ГБ/с (INFINITY NF ULTRA-M2) Скорость SATA до 1.5 ГБ/с (INFINITY NF-M2) • NVIDIA RAID позволяет создавать массивы RAID через Serial ATA и Parallel ATA • RAID 0, RAID 1, RAID 0+1 и JBOD
IEEE 1394	• VIA VT6307 • Поддерживает 2 100/200/400 Mb/sec порта
задняя панель I/O	• 1 мини-DIN-6 PS/2 порт для мыши и • 1 мини-DIN-6 PS/2 порт для клавиатуры • 1 S/PDIF-in RCA порт • 1 S/PDIF-out RCA порт • 1 DB-25 параллельный порт • 1 внешнего DB-9 порта • 1 IEEE 1394 порт • 1 RJ45 LAN порт • 4 USB 2.0/1.1 порта • Mic-in, line-in и line-out гнезда для звука
внутренне I/O	• 3 разъем для 6-х дополнительных внешних USB 2.0/1.1 портов • 1 разъем для внешнего IEEE 1394 порта • 1 фронтальный аудио-разъем для внешнего линейного и микрофонного выходов • 1 CD-in внутренних звуковых разъема • 1 S/PDIF разъем для присоединения оптического кабеля • 1 разъем для интерфейса IR • 4 порта Serial ATA • 2 IDE разъема и • 1 разъем FDD • 1 24-штырьковых разъемов питания ATX • 1 4-штырьковых 12V разъемов питания ATX • 1 Фронт панель разъем • 3 Разъемы для вентилятора
PCB	• ATX • 22cm (8.66") x 30.5cm (12")

日本語

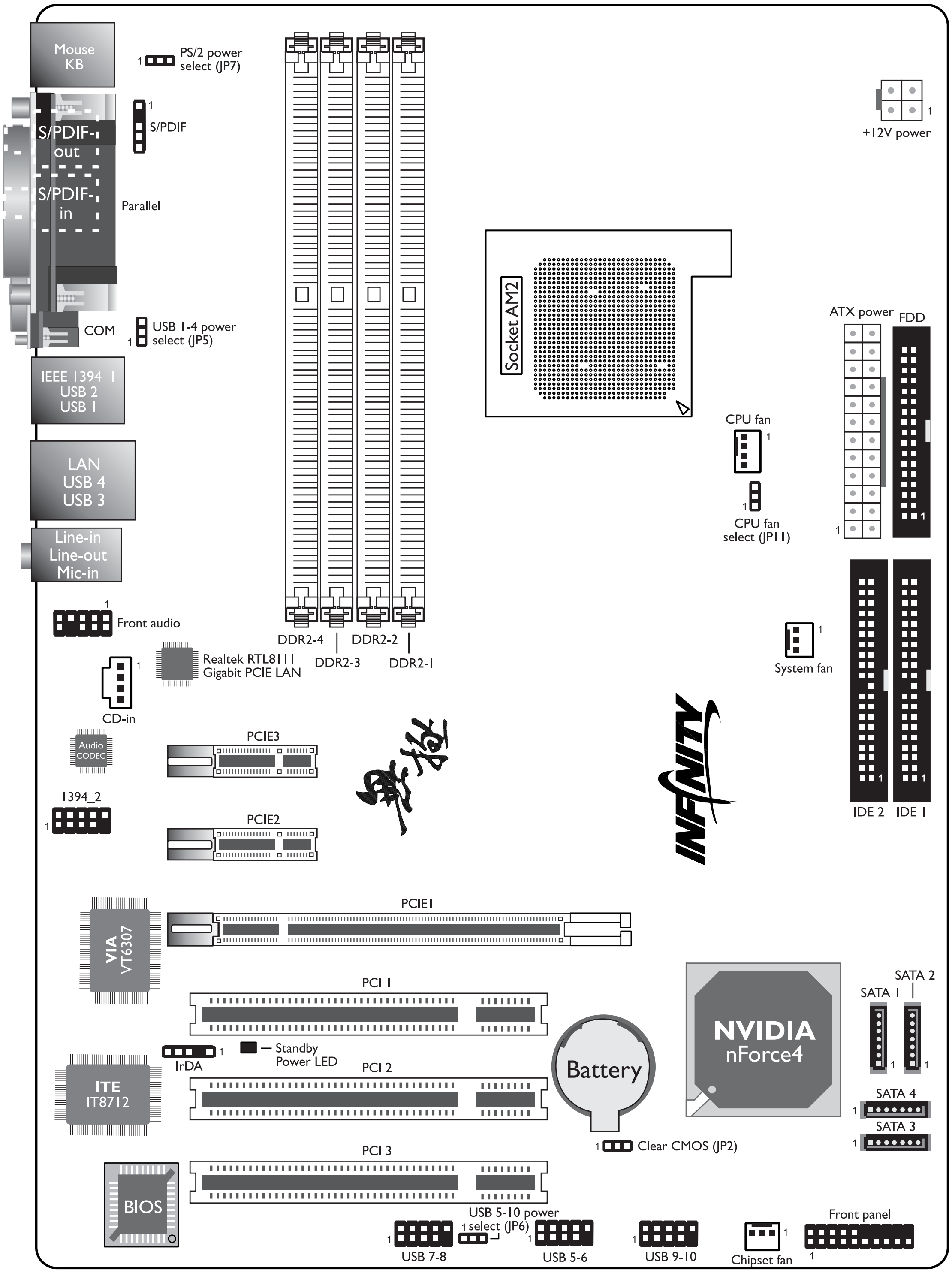
プロセッサ	AMD Athlon 64 X2 / Athlon 64 FX / Athlon 64 / Sempron ソケットAM2
フロントサイドバス (FSB)	2000MT/s HyperTransport インターフェース
チップセット	NVIDIA nForce4™ ULTRAチップセット (INFINITY NF ULTRA-M2) NVIDIA nForce4™ チップセット(INFINITY NF-M2)
システムメモリ	240ピンDDR2 DIMMソケット x 4 DDR2 533 および DDR2 667 DIMMs デュアルチャネル (128ビット幅) メモリインターフェース対応 最大4GBまでのシステムメモリに対応 x8/x16 非ECC アンバッファードDIMM
拡張スロット	PCI Express x16 スロット x 1 PCI Express x1 スロット x 2 PCIスロット x 3
BIOS	Award BIOS 4Mビット フラッシュメモリ
電源管理機能	ACPIおよびOS主導電源管理 ACPI STR (サスペンド・トゥ・ラム) 機能 ウェイクオンPS/2キーボード/マウス ウェイクオンUSB キーボード/マウス ウェイクオンLAN (WOL) ウェイクオンリング (Wake-On-Ring) システム電源オン用RTCタイマー AC電源問題発生時のリカバリ機能
ハードウェアモニタ	CPU/システム温度のモニタリング 5V/12V/3.3V/5VSB/Vbat/Vcore/Vdimm/Vエップ電圧のモニタリング 冷却ファン速度のモニタリング CPUオーバーヒート保護機能によるシステムブートアップ中のCPU温度モニタリング
オーディオ	Realtek ALC655 6 チャンネル AC97 オーディオ CODEC トゥルー・ステレオ・ラインレベル出力 S/PDIF-入力/出力インターフェース
LAN	Realtek RTL8111 ギガビットGigabit PCIE LAN IEEE 802.3 (10BASE-T)、802.3u (100BASE-TX)および802.3ab (1000BASE-T)基準に完全準拠

IDE	2つのIDEコネクタにより最大4台のUltraDMA 133Mbpsハードドライブと接続可能 NVIDIA RAID により、シリアルATAおよびパラレルATAにてRAIDアレイを構築可能 RAID 0, RAID 1, RAID 0+1 および JBOD
シリアルATA (SATA)	SATAコネクタ x 4 SATA速度は最大3Gb/s (INFINITY NF ULTRA-M2) SATA速度は最大1.5Gb/s (INFINITY NF-M2) RAID 0, RAID 1, RAID 0+1 および JBOD NVIDIA RAID により、シリアルATAおよびパラレルATAにてRAIDアレイを構築可能
IEEE 1394	VIA VT6307 2つの100/200/400 Mb/秒ポートをサポート
リアパネルI/O	mini-DIN-6 PS/2マウスポート x 1 mini-DIN-6 PS/2キーボードポート x 1 RCA S/PDIF-in x 1 RCA S/PDIF-out x 1 DB-25パラレルポート x 1 DB-9シリアルポート x 1 IEEE 1394ポート x 1 RJ45 LANポート x 1 USB 2.0/1.1ポート x 4 ライン入力、ライン出力（フロントR/L）およびマイク入力端子
内部I/O	6ポート外部USB 2.0/1.1ポート用コネクタ x 3 外部IEEE 1394ポート用コネクタ x 1 外部ライン出力およびマイク入力端子用前フロントオーディオコネクタ x 1 CD入力内部オーディオコネクタ x 1 同軸S/PDIFコネクタ x 1 IrDAコネクタ x 1 SATAコネクタ x 4 IDEコネクタ x 2 フロッピーコネクタ x 1 24ピンATX主電源コネクタ x 1 4ピンATX12V電源コネクタ x 1 フロントパネルコネクタ x 1 ファンコネクタ x 3
PCB	ATX フォームファクタ 22cm (8.66 inches) x 30.5cm (12 inches)

System Board Layout



INFINITY NF ULTRA-M2

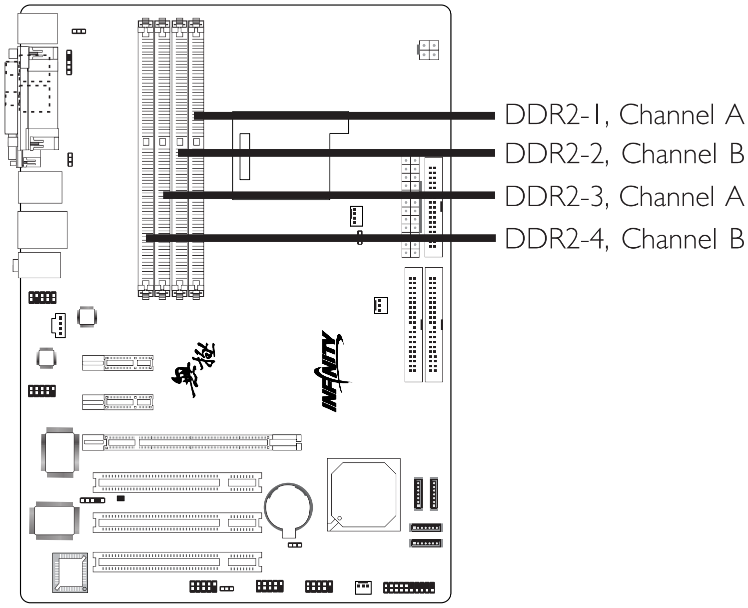


INFINITY NF-M2

Warning:

Electrostatic discharge (ESD) can damage your system board, processor, disk drives, add-in boards, and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

System Memory



The system board supports 240-pin DDR2 DIMM sockets. The four DDR2 DIMM sockets on the system board are divided into 2 channels:

Channel A - DDR2-1 and DDR2-3
Channel B - DDR2-2 and DDR2-4

The system board supports the following memory interface.

Single Channel (SC)

Data will be accessed in chunks of 64 bits (8B) from the memory channels.

Dual Channel (DC)

Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

Single Channel	• DIMMs are on the same channel. • DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs. • Not all slots need to be populated.
Dual Channel	• DIMMs of the same memory configuration are on different channels.

The table below shows the DIMM sockets that must be populated with DIMMs for single or dual channel interface. We strongly recommend that you strictly follow the memory configurations below. Installing DDR2 DIMMs other than the recommended configurations may cause system boot failure.

Dual Channel	DDR2-1	DDR2-2	-	-
Dual Channel	-	-	DDR2-3	DDR2-4
Dual Channel	DDR2-1	DDR2-2	DDR2-3	DDR2-4
Single Channel	DDR2-1	-	-	-
Single Channel	-	-	DDR2-3	-
Single Channel	DDR2-1	-	DDR2-3	-
Single Channel	-	DDR2-2	-	DDR2-4

DDR2 Speed in Relation to the CPU's Core Multiplier

The DDR2 speed is highly relevant to the CPU's core multiplier. It varies in accordance to the DRAM speed set in the BIOS (Genie BIOS Setting, "DRAM Speed" field) and the CPU's core multiplier.

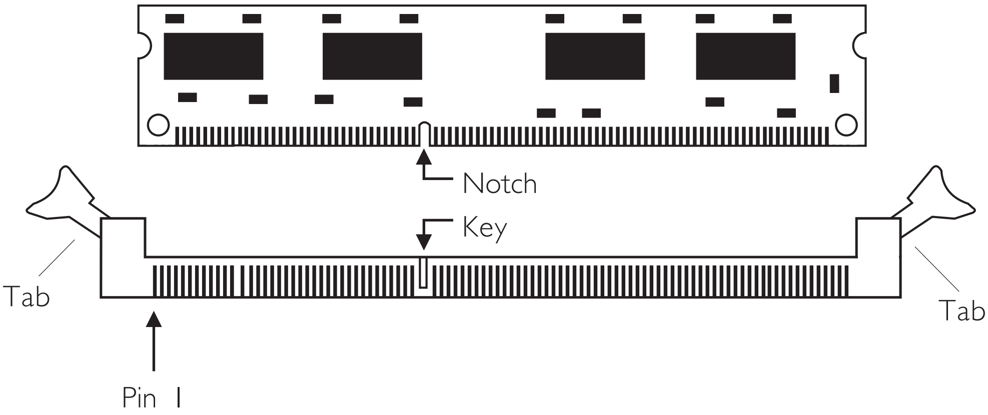
Core Multiplier	Core Frequency	DDR2 400	DDR2 533	DDR2 667	DDR2 800
4x	800	DDR2 320	DDR2 320	DDR2 320	DDR2 320
5x	1000	DDR2 400	DDR2 400	DDR2 400	DDR2 400
6x	1200	DDR2 400	DDR2 480	DDR2 480	DDR2 480
7x	1400	DDR2 400	DDR2 466	DDR2 560	DDR2 560
8x	1600	DDR2 400	DDR2 534	DDR2 640	DDR2 640
9x	1800	DDR2 400	DDR2 514	DDR2 600	DDR2 720
10x	2000	DDR2 400	DDR2 500	DDR2 666	DDR2 800
11x	2200	DDR2 400	DDR2 488	DDR2 628	DDR2 734
12x	2400	DDR2 400	DDR2 534	DDR2 600	DDR2 800
13x	2600	DDR2 400	DDR2 520	DDR2 650	DDR2 742
14x	2800	DDR2 400	DDR2 510	DDR2 622	DDR2 800
15x	3000	DDR2 400	DDR2 500	DDR2 666	DDR2 750

BIOS Setting

Configure the system memory in the Genie BIOS Setting submenu ("DRAM Timing and Config section) of the BIOS.

Installing the DIM Module

A DIM module simply snaps into a DIMM socket on the system board. Pin 1 of the DIM module must correspond with Pin 1 of the socket.



1. Pull the "tabs" which are at the ends of the socket to the side.
2. Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place.

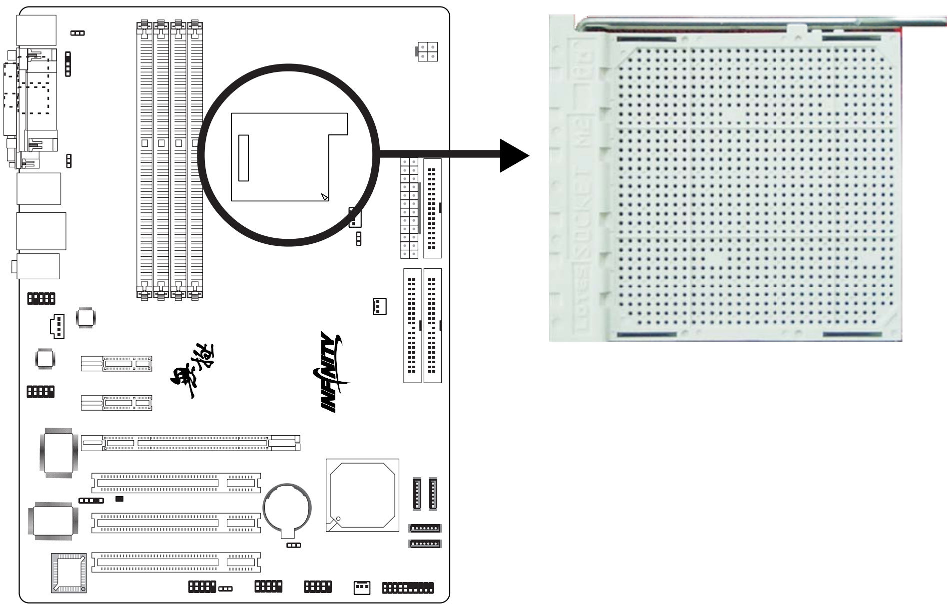
CPU

Overview

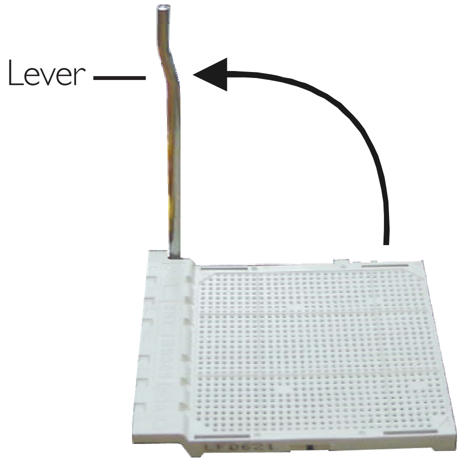
The system board is equipped with Socket AM2 for installing an AMD CPU designed for this socket.

Installing the CPU

1. Make sure the PC and all other peripheral devices connected to it has been powered down.
2. Disconnect all power cords and cables.
3. Locate Socket AM2 on the system board.

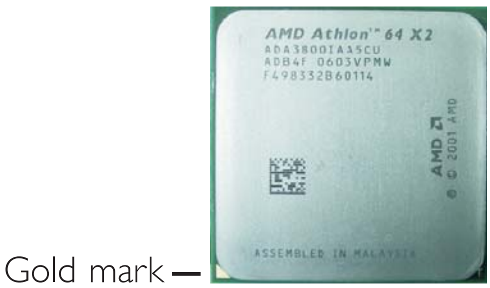


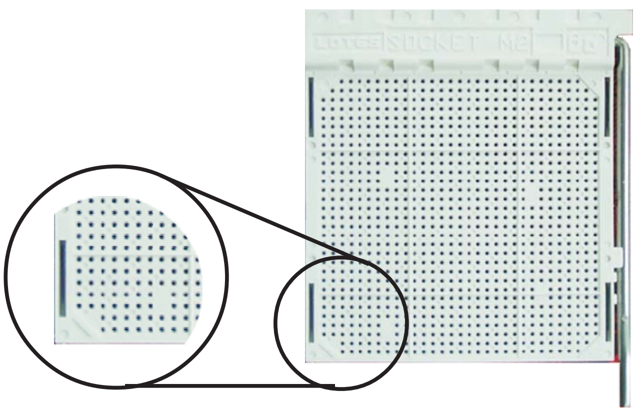
4. Unlock the socket by pushing the lever sideways, away from the socket, then lifting it up to a 90° angle. Make sure the lever is lifted to at least this angle otherwise the CPU will not fit in properly.



5. Position the CPU above the socket. The gold mark on the CPU must align with the corner of the CPU socket (refer to the enlarged image) shown below.

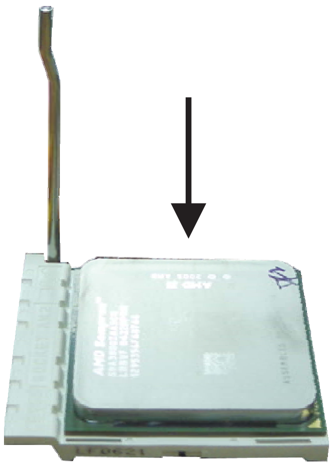
Important:
Handle the CPU by its edges and avoid touching the pins.





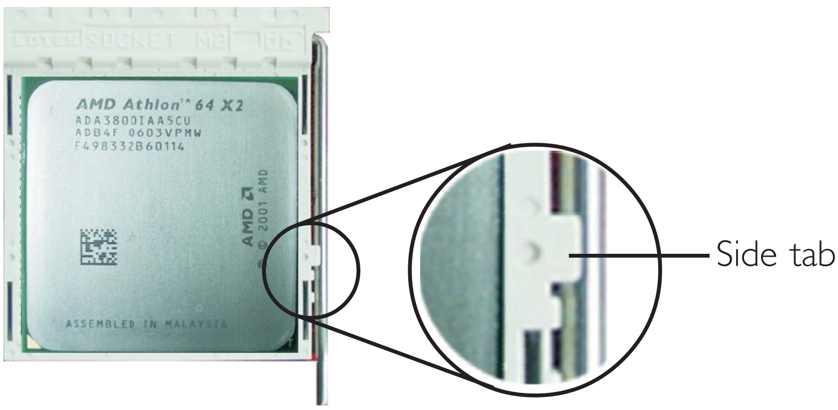
6. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force.

Important:
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.



7. Once the CPU is in place, push down the lever to lock the socket. The lever should click on the side tab to indicate that the CPU is completely secured in the socket.





Installing the Fan and Heat Sink

The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.

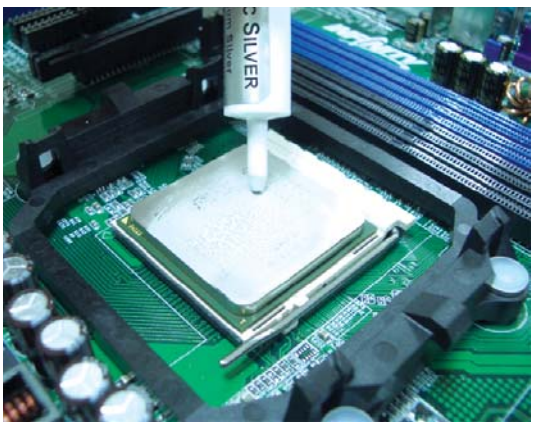
The fan / heat sink assembly must provide airflow adequate to ensure appropriate internal temperature and cooling of the components in the system. Failure to use the appropriate cooling system may result in reduced performance or, in some instances, damage to the system board.

Note:

- *Use only certified fan and heat sink.*
- *The fan and heat sink package usually contains the fan and heat sink assembly, and an installation guide. If the installation procedure in the installation guide differs from the one in this section, please follow the installation guide in the package.*

1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the CPU or fan heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

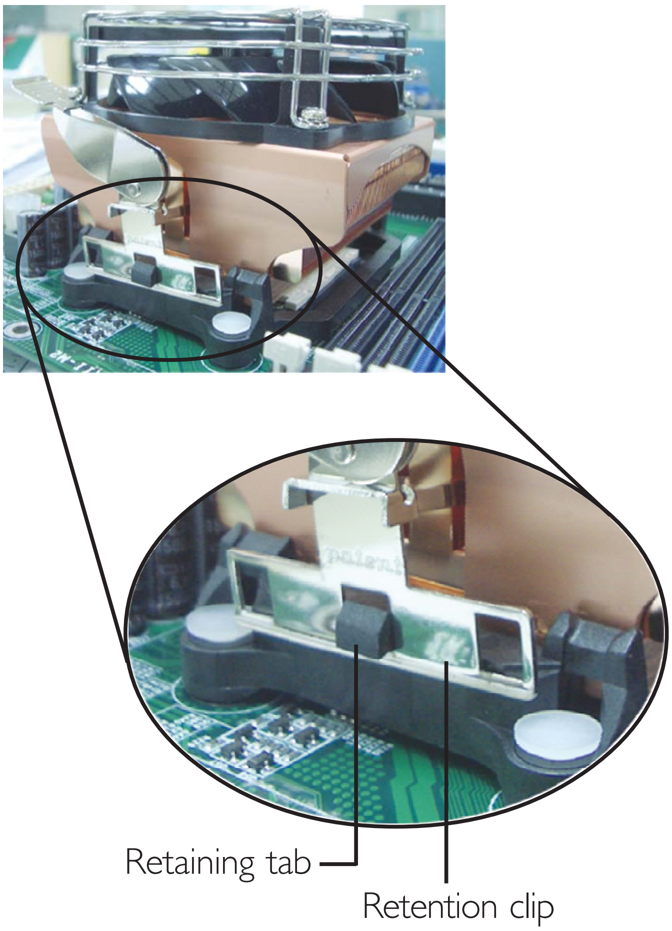
   Do not apply the paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.



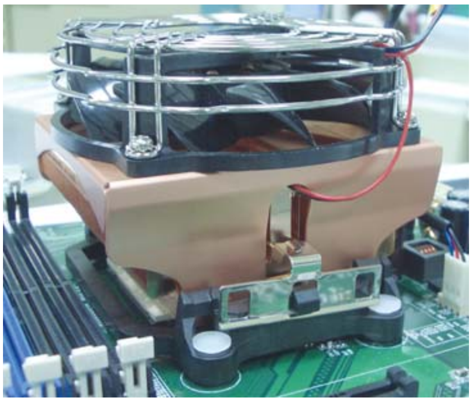
2. The system board comes with the retention module base already installed.



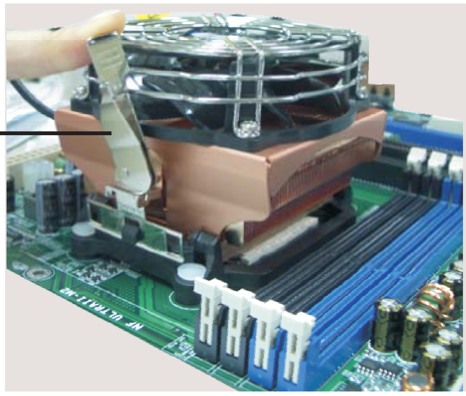
3. Place the heat sink on top of the CPU. Now hook one side of the retention clip onto the retention module base by fitting the hole(s) on the retention clip into the retaining tab(s) of the retention module base.



4. Hook the other side of the retention clip so that the hole(s) on the retention clip also fit into the retaining tab(s) of the retention module base.



5. Move the retention lever to its opposite side then push it down to lock the fan and heat sink assembly to the retention module base.



Note:

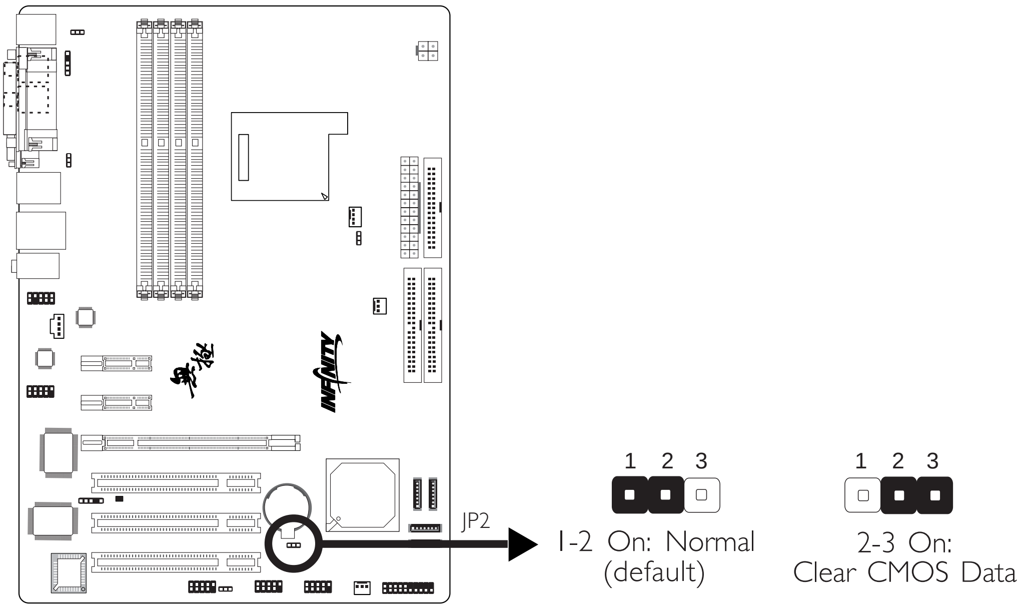
1. You will not be able to secure the fan and heat sink assembly in place if it did not fit properly onto the retention module base.

2. Make sure there is sufficient air circulation across the CPU fan and heat sink.

6. Connect the CPU fan's cable connector to the CPU fan connector on the system board.

Jumper Settings

Clear CMOS Data



If you encounter the following,

a) *CMOS data becomes corrupted.*
b) *You forgot the supervisor or user password.*
c) *You are unable to boot-up the computer system because the processor's ratio/clock was incorrectly set in the BIOS.*

you can reconfigure the system with the default values stored in the ROM BIOS.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

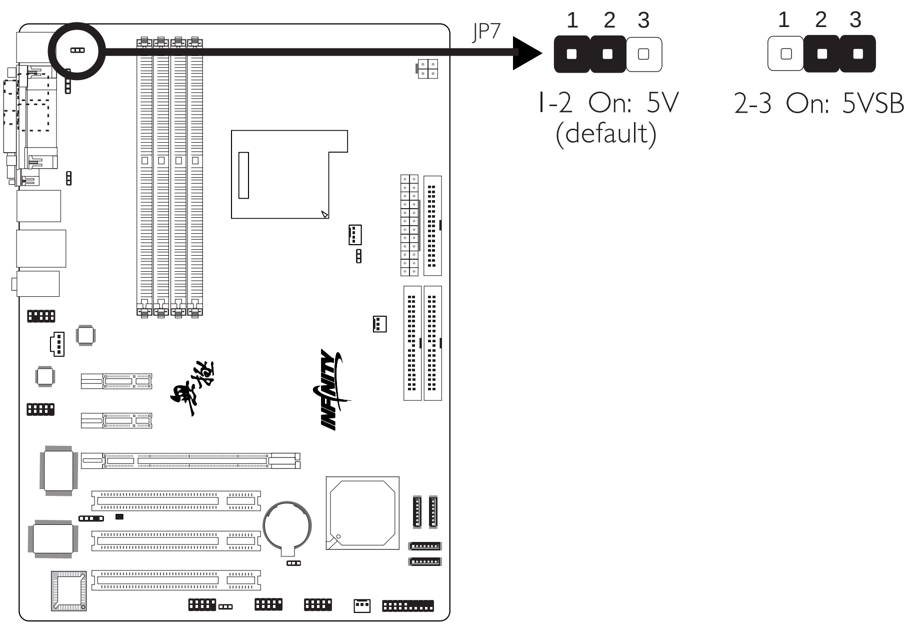
2. Set JP2 pins 2 and 3 to On. Wait for a few seconds and set JP2 back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

   If your reason for clearing the CMOS data is due to incorrect setting of the processor's ratio/clock in the BIOS, please proceed to step 4.

4. After powering-on the system, press <Del> to enter the main menu of the BIOS.
5. Select the Genie BIOS Setting submenu and press <Enter>.
6. Set the processor's ratio/clock to its default setting or an appropriate setting. Refer to the Genie BIOS Setting section in chapter 3 for more information.
7. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.
8. Type <Y> and press <Enter>.

PS/2 Power Select



JP7 is used to select the power of the PS/2 keyboard/mouse port. Selecting 5VSB will allow you to use the PS/2 keyboard or PS/2 mouse to wake up the system.

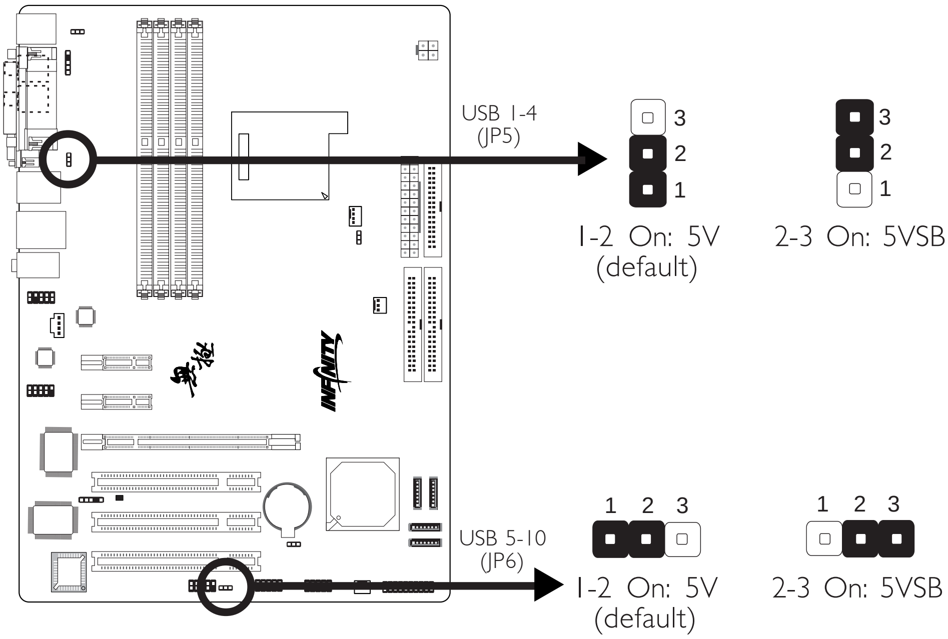
BIOS Setting

Configure the PS/2 keyboard/mouse wake up function in the Power Management Setup submenu of the BIOS. Refer to chapter 3 for more information.

Important:

The 5VSB power source of your power supply must support ≥720mA.

USB Power Select



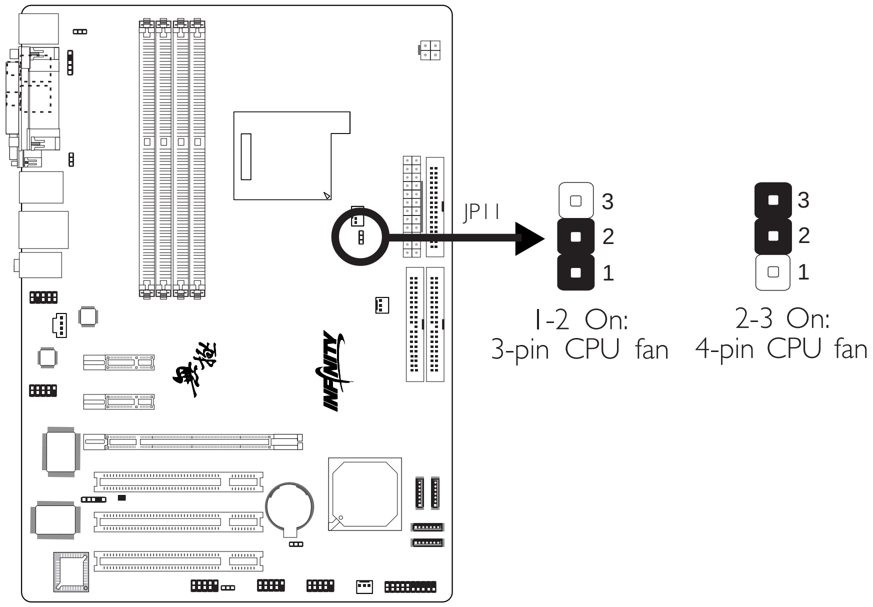
JP5 and JP6 are used to select the power of the USB ports. Selecting 5VSB will allow you to use the USB keyboard or USB mouse to wake up the system..



Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.

CPU Fan Select

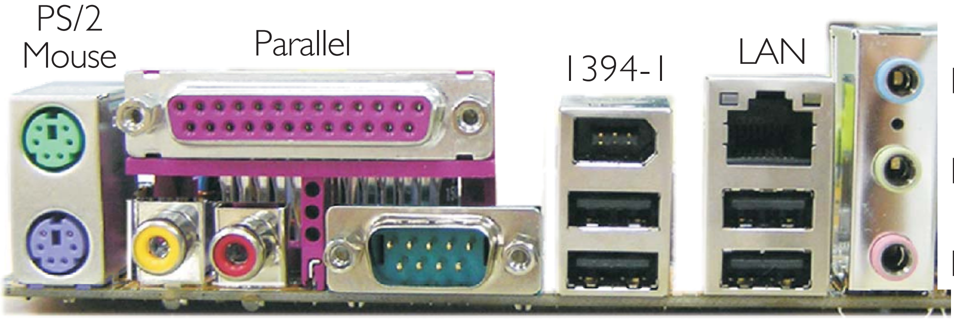


The system board allows connecting a CPU fan that comes with a 3-pin or 4-pin cable connector. Set JP11 according to the type of cable connector that you are using.

Important:

If JP11 is set incorrectly, the system will not be able to appropriately detect the CPU fan.

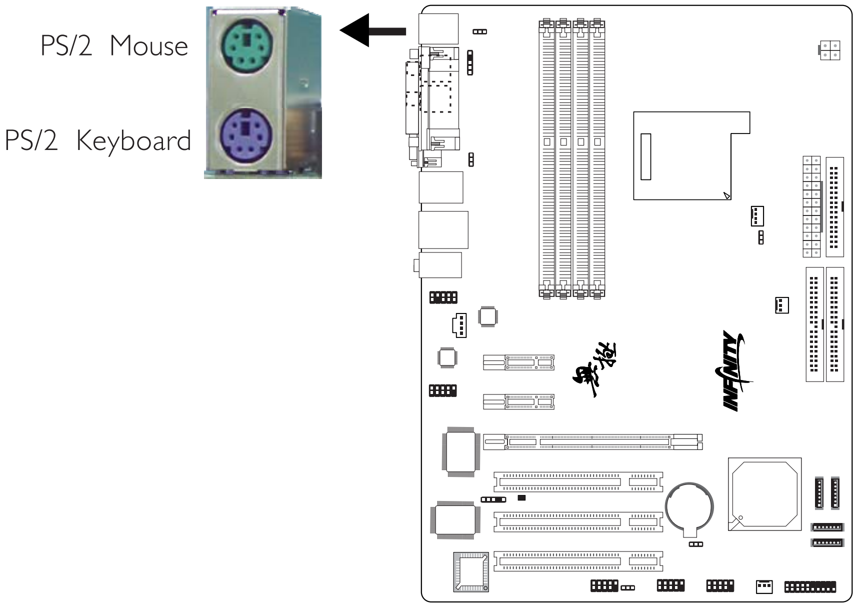
Rear Panel I/O Ports



The rear panel I/O ports consist of the following:

- PS/2 mouse port
- PS/2 keyboard port
- Parallel Port
- RCA S/PDIF-out jack
- RCA S/PDIF-in jack
- COM port
- 1394-1 port
- USB ports
- LAN port
- Line-in port
- Line-out port
- Mic-in port

PS/2 Mouse and PS/2 Keyboard Ports



The system board is equipped with an onboard PS/2 mouse (Green) and PS/2 keyboard (Purple) ports - both at location CN2 of the system board. The PS/2 mouse port uses IRQ12. If a mouse is not connected to this port, the system will reserve IRQ12 for other expansion cards.

Warning:

Make sure to turn off your computer prior to connecting or disconnecting a mouse or keyboard. Failure to do so may damage the system board.

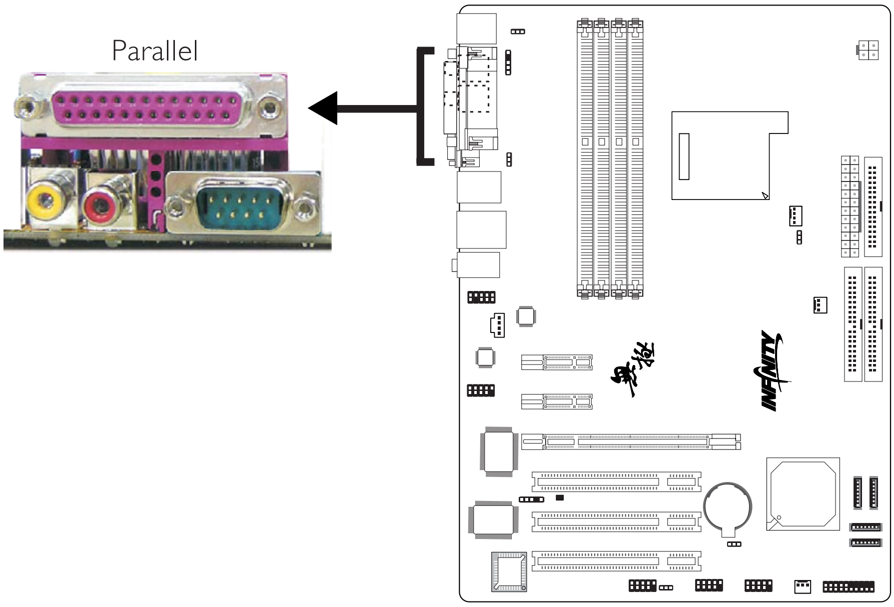
Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

- **Jumper Setting:**
  JP7 must be set to "2-3 On: 5VSB". Refer to "PS/2 Power Select" in this chapter for more information.

- **BIOS Setting:**
  Configure the PS/2 wake up function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

Parallel Port



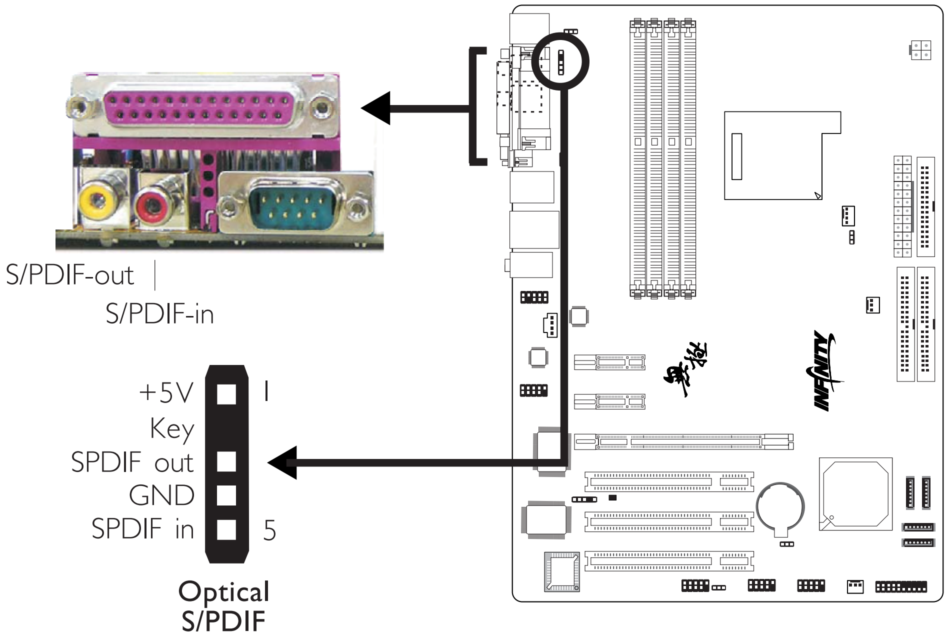
The system board has a standard parallel port (Burgundy) at location CN8 for interfacing your PC to a parallel printer. It supports SPP, ECP and EPP.

Setting	Function
SPP (Standard Parallel Port)	Allows normal speed operation but in one direction only.
ECP (Extended Capabilities Port)	Allows parallel port to operate in bidirectional mode and at a speed faster than the SPP's data transfer rate.
EPP (Enhanced Parallel Port)	Allows bidirectional parallel port operation at maximum speed.

BIOS Setting

Configure the parallel port in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

S/PDIF

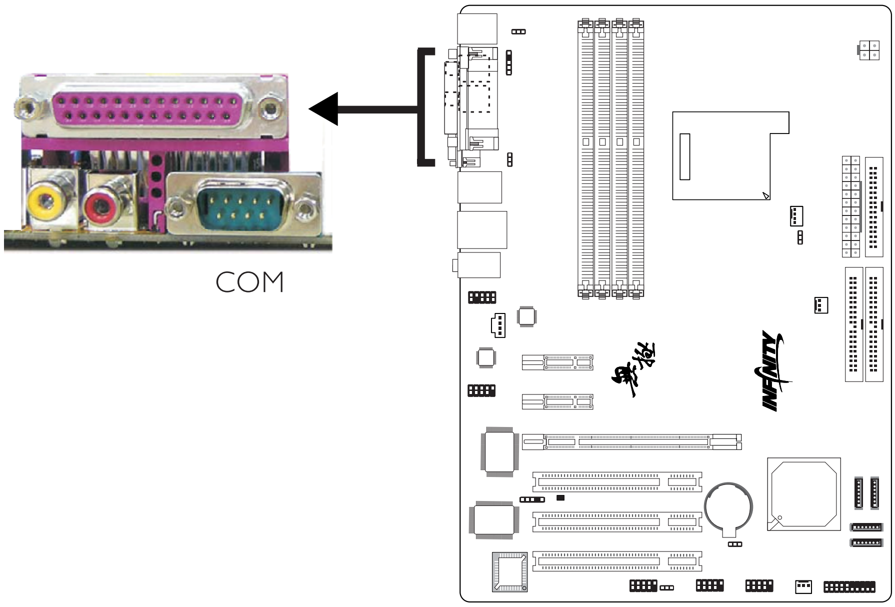


The system board is equipped with an onboard RCA S/PDIF-out jack and a RCA S/PDIF-in jack at locations CN5 and CN7 respectively. It is also equipped with a connector at location J3 for optical S/PDIF connection. S/PDIF ports are used to connect audio output devices.

Your optical S/PDIF may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable connector to J3. Make sure pin 1 of the audio cable connector is aligned with pin 1 of J3.

Important:
DO NOT use optical S/PDIF and coaxial RCA S/PDIF at the same time.

COM Port

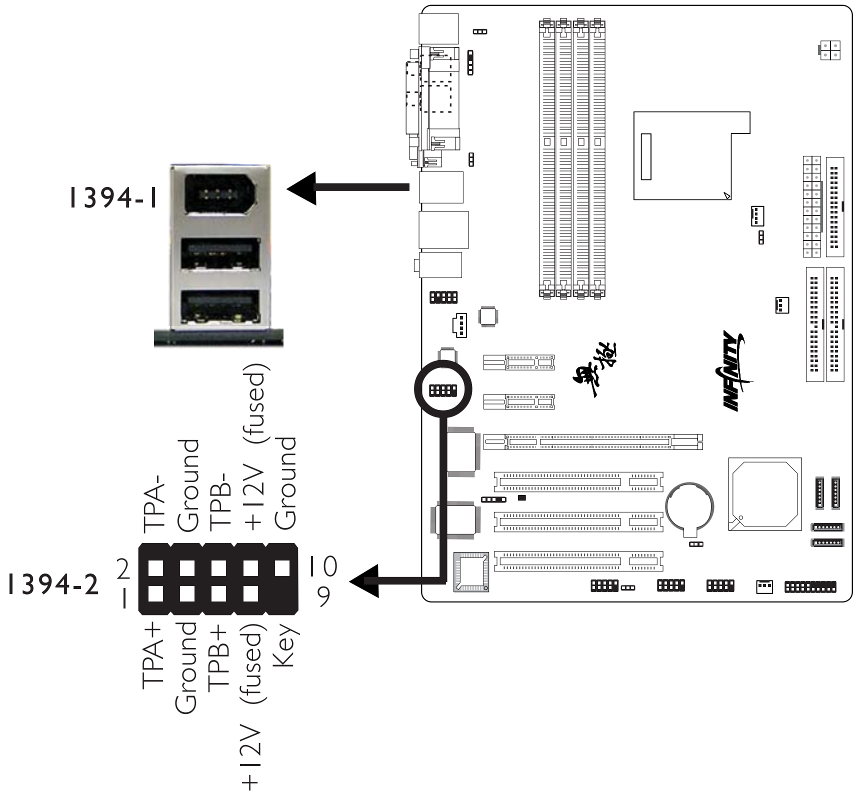


The system board is equipped with an onboard serial port at location CN1. The serial port is RS-232 asynchronous communication port with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

BIOS Setting

Configure the serial port in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

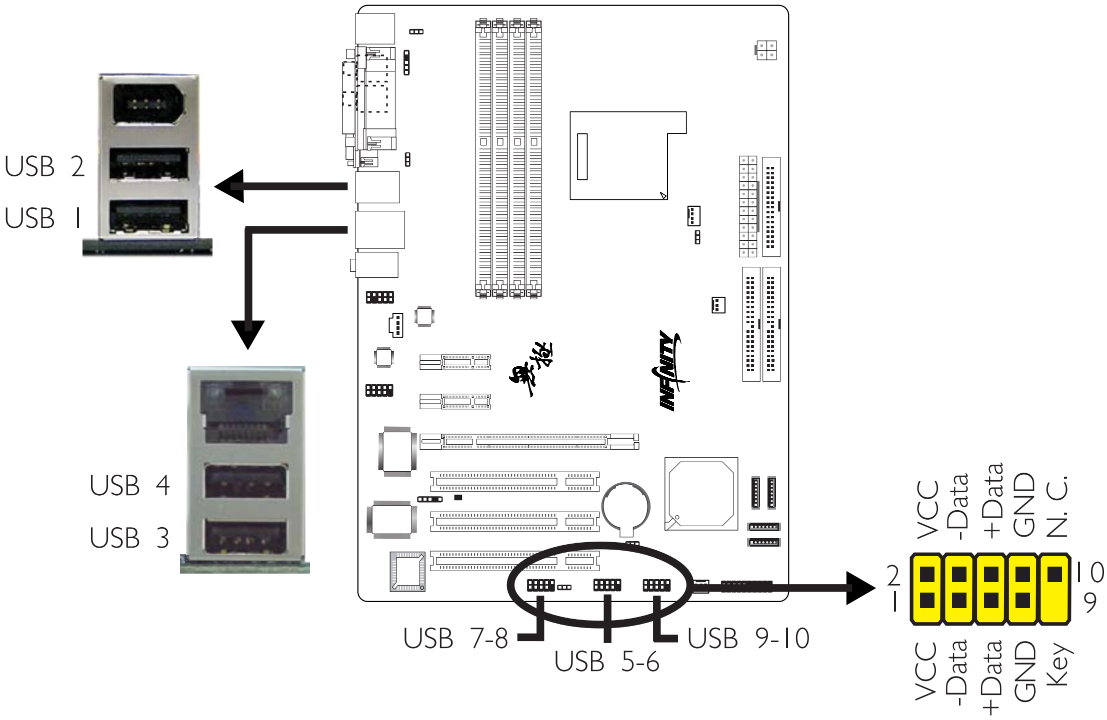
IEEE 1394



The system board is equipped with an onboard IEEE 1394 port at location CN3 (IEEE 1394-1) of the system board.

It is also equipped with an IEEE 1394 connector at location J8 (1394-2) for connecting an additional 1394 device. The 1394 port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the 1394 port cable to J8. Make sure pin 1 of the cable connector is aligned with pin 1 of the J8.

Universal Serial Bus Ports



The system board supports 10 USB 2.0/1.1 ports. USB allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

Four onboard USB 2.0/1.1 ports (Black) are at locations CN3 (USB 1-2) and CN4 (USB 3-4) of the system board.

J34 (USB 5-6), J18 (USB 7-8) and J33 (USB 9-10) connectors allow you to connect 6 additional USB 2.0/1.1 ports. The USB ports may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the connector that is attached to the USB port cables to J34, J18 or J33.

BIOS Setting

Configure the onboard USB in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

You may need to install the proper drivers in your operating system to use the USB device. Refer to your operating system's manual or documentation for more information.

Refer to chapter 4 for more information about installing the USB 2.0 driver.

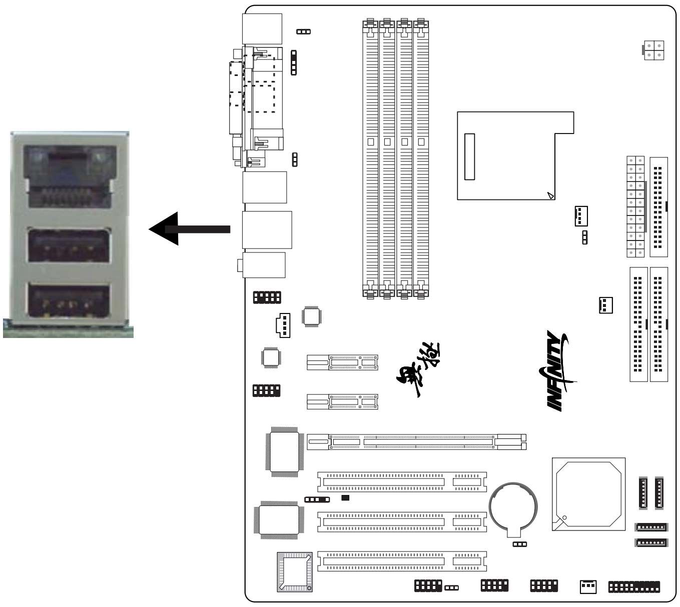
Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state. To use this function:

- **Jumper Setting:**
  JP5 and/or JP6 must be set to "2-3 On: 5VSB". Refer to "USB Power Select" in this chapter for more information.

Important:
If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5VSB power source of your power supply must support ≥1.5A. For 3 or more USB ports, the 5VSB power source of your power supply must support ≥2A.

RJ45 LAN Port



The onboard LAN port is at location CN4 of the system board. LAN allows the system board to connect to a local area network by means of a network hub.

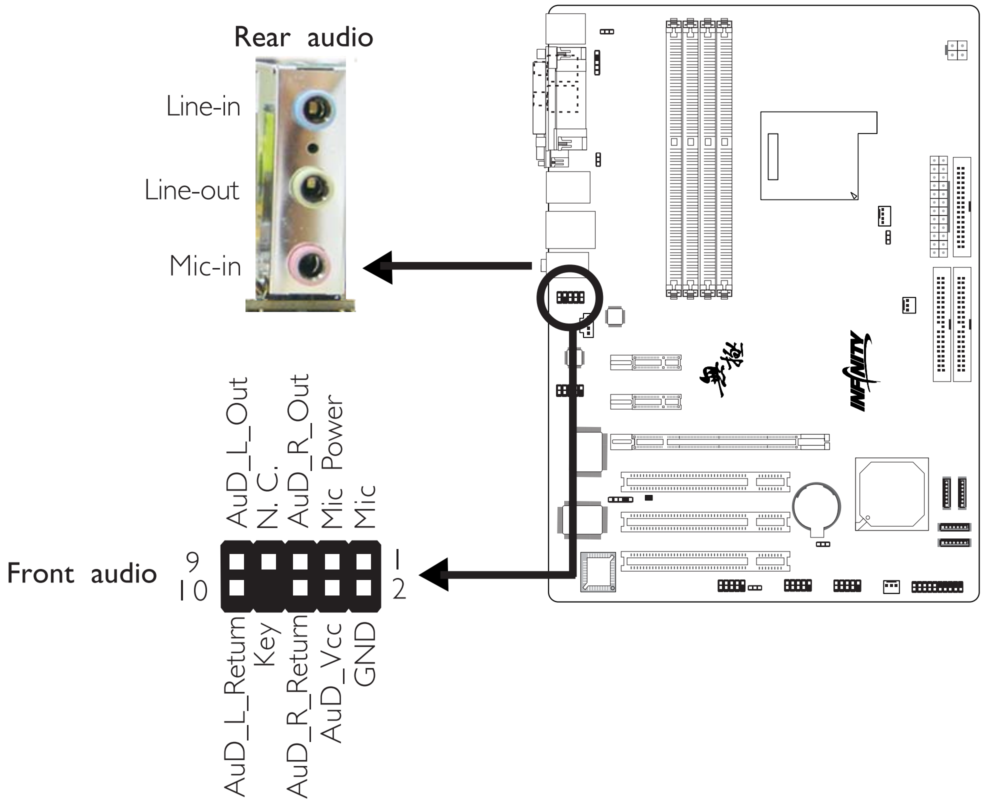
BIOS Setting

Configure the onboard LAN in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the nVidia Chipset Drivers which already includes the NVIDIA Ethernet Driver. Refer to chapter 4 for more information.

Audio



Rear Panel Audio (CN6)

Line-in (Light Blue)
This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.

Line-out (Lime)
This jack is used to connect to the front right and front left speakers of the audio system.

Mic-in Jack (Pink)
This jack is used to connect an external microphone.

Front Audio

The front audio connector at location J4 allows you to connect to the line-out and mic-in jacks that are at the front panel of your system. Using this connector will disable the rear audio's line-out and mic-in functions.

Remove the jumper caps from pins 5-6 and pins 9-10 of J4 prior to connecting the front audio cable connector. Make sure pin 1 of the cable connector is aligned with pin 1 of J4. If you are not using this connector, make sure to replace the jumper caps back to their original pin locations.

Pins 5-6 and 9-10 short (default)	The front audio is disabled. The rear audio is enabled.
Pins 5-6 and 9-10 open	The front audio is enabled. The rear audio is disabled.

BIOS Setting

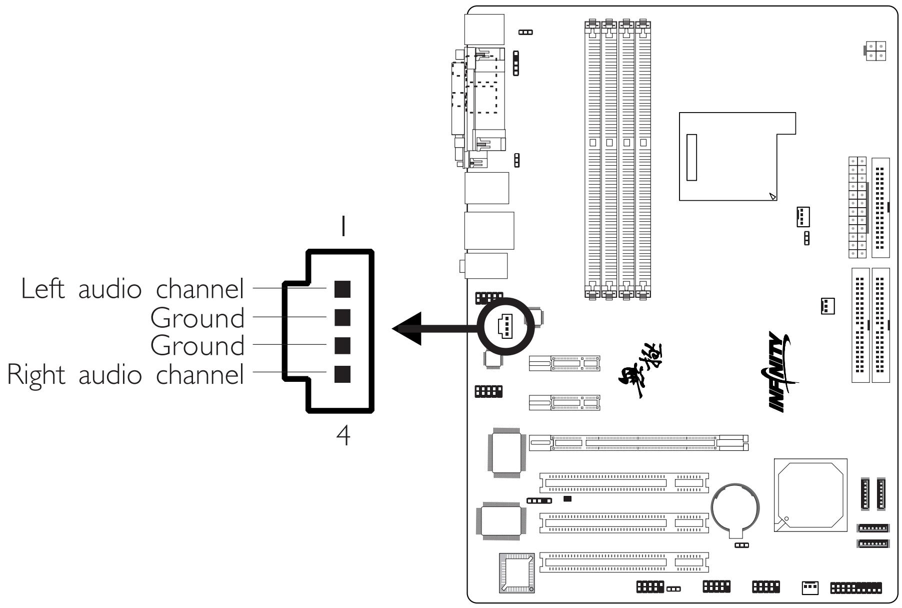
Configure the onboard audio in the Integrated Peripherals submenu ("Onboard Device" section) of the BIOS. Refer to chapter 3 for more information.

Driver Installation

Install the audio driver. Refer to chapter 4 for more information.

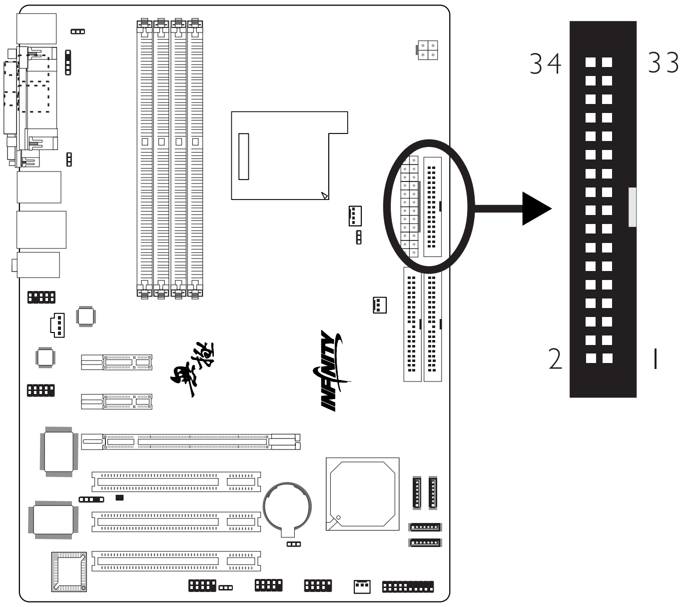
I/O Connectors

CD-in Internal Audio Connector



The CD-in connector at location J1 is used to receive audio from a CD-ROM drive, TV tuner or MPEG card.

Floppy Disk Drive Connector



The system board is equipped with a floppy disk drive connector that supports two standard floppy disk drives. To prevent improper floppy cable installation, the floppy disk header has a keying mechanism. The 34-pin connector on the floppy cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

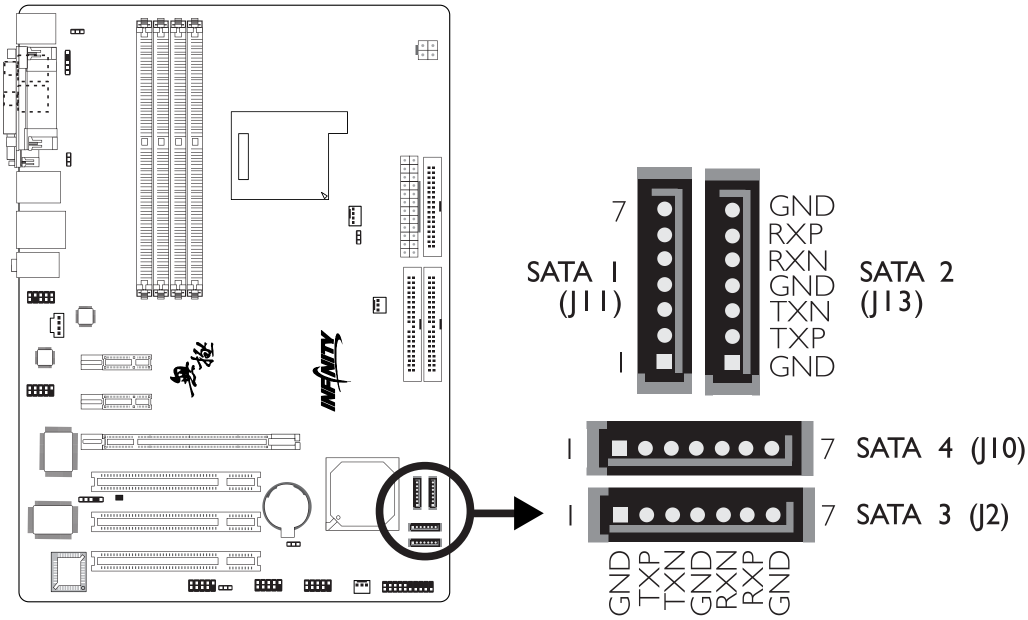
Connecting the Floppy Disk Drive Cable

Install one end of the floppy disk drive cable into the shrouded floppy disk header (J23) on the system board and the other endmost connector to the drive you want to designate as Drive A. If you are connecting another drive (Drive B), install the middle connector of the cable to the drive. The colored edge of the daisy chained ribbon cable should be aligned with pin 1 of J23.

BIOS Setting

Enable or disable this function in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS. Refer to chapter 3 for more information.

Serial ATA Connectors



- SATA speed up to 3Gb/s (INFINITY NF ULTRA-M2)
  SATA speed up to 1.5Gb/s (INFINITY NF-M2)
- RAID 0, RAID 1, RAID 0+1 and JBOD
- NVIDIA RAID allows RAID arrays spanning across Serial ATA and Parallel ATA

Connecting Serial ATA Cables

Connect one end of the Serial ATA cable to the Serial ATA connector and the other end to your Serial ATA device.

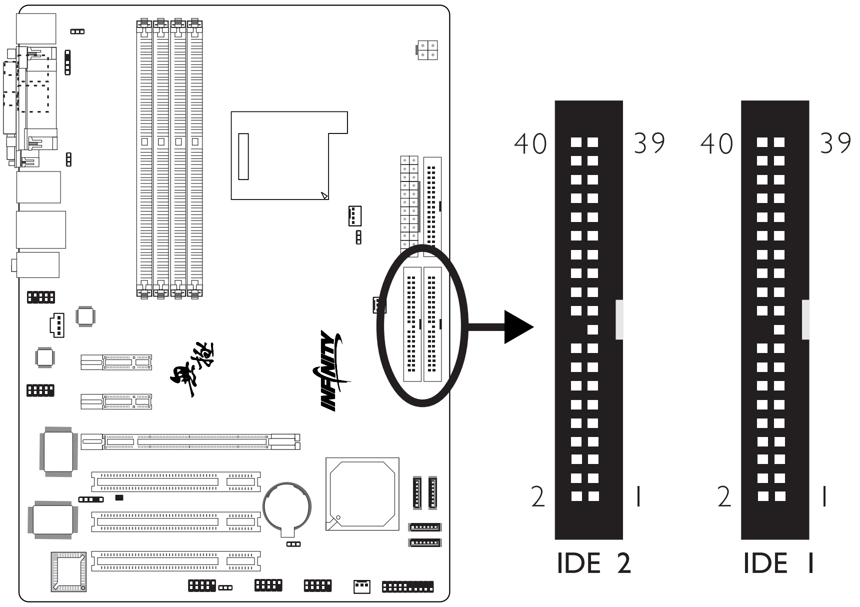
BIOS Setting

Configure Serial ATA in the Integrated Peripherals submenu ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

Configuring RAID

The system board allows configuring RAID on Serial ATA drives. Refer to chapter 6 for steps in configuring RAID.

IDE Disk Drive Connector



- NVIDIA RAID allows RAID arrays spanning across Serial ATA and Parallel ATA
- RAID 0, RAID 1, RAID 0+1 and JBOD

The system board is equipped with two shrouded PCI IDE headers that will interface four Enhanced IDE (Integrated Drive Electronics) disk drives. To prevent improper IDE cable installation, each shrouded PCI IDE header has a keying mechanism. The 40-pin connector on the IDE cable can be placed into the header only if pin 1 of the connector is aligned with pin 1 of the header.

Each IDE connector supports 2 devices, a Master and a Slave. Use an IDE ribbon cable to connect the drives to the system board. An IDE ribbon cable have 3 connectors on them, one that plugs into an IDE connector on the system board and the other 2 connects to IDE devices. The connector at the end of the cable is for the Master drive and the connector in the middle of the cable is for the Slave drive.

Connecting the IDE Disk Drive Cable

Install one end of the IDE cable into the IDE 1 header (J25) on the system board and the other connectors to the IDE devices.

If you are adding a third or fourth IDE device, use another IDE cable and install one end of the cable into the IDE 2 header (J22) on the system board and the other connectors to the IDE devices.

Note:

Refer to your disk drive user's manual for information about selecting proper drive switch settings.

Adding a Second IDE Disk Drive

When using two IDE drives, one must be set as the master and the other as the slave. Follow the instructions provided by the drive manufacturer for setting the jumpers and/or switches on the drives.

The system board supports Enhanced IDE or ATA-2, ATA/33, ATA/66, ATA/100 or ATA/133 hard drives. We recommend that you use hard drives from the same manufacturer. In a few cases, drives from two different manufacturers will not function properly when used together. The problem lies in the hard drives, not the system board.

Important:

If you encountered problems while using an ATAPI CD-ROM drive that is set in Master mode, please set the CD-ROM drive to Slave mode. Some ATAPI CD-ROMs may not be recognized and cannot be used if incorrectly set in Master mode.

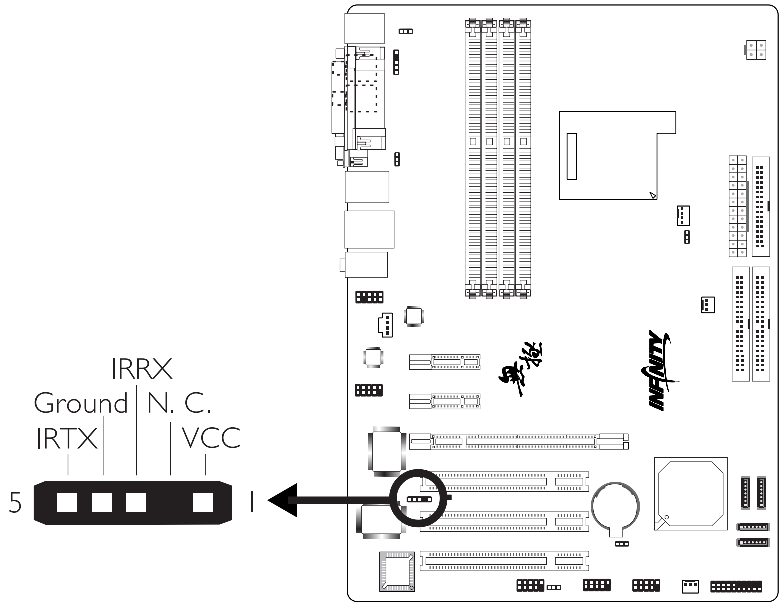
BIOS Setting

Configure the onboard IDE in the Integrated Peripherals submenu ("OnChip IDE Device" section) of the BIOS. Refer to chapter 3 for more information.

Configuring RAID

The system board allows configuring RAID on Parallel ATA drives. Refer to chapter 6 for steps in configuring RAID.

IrDA Connector



Connect the cable connector from your IrDA module to the IrDA connector (J5).

Note:

The sequence of the pin functions on some IrDA cable may be reversed from the pin function defined on the system board. Make sure to connect the cable connector to the IrDA connector according to their pin functions.

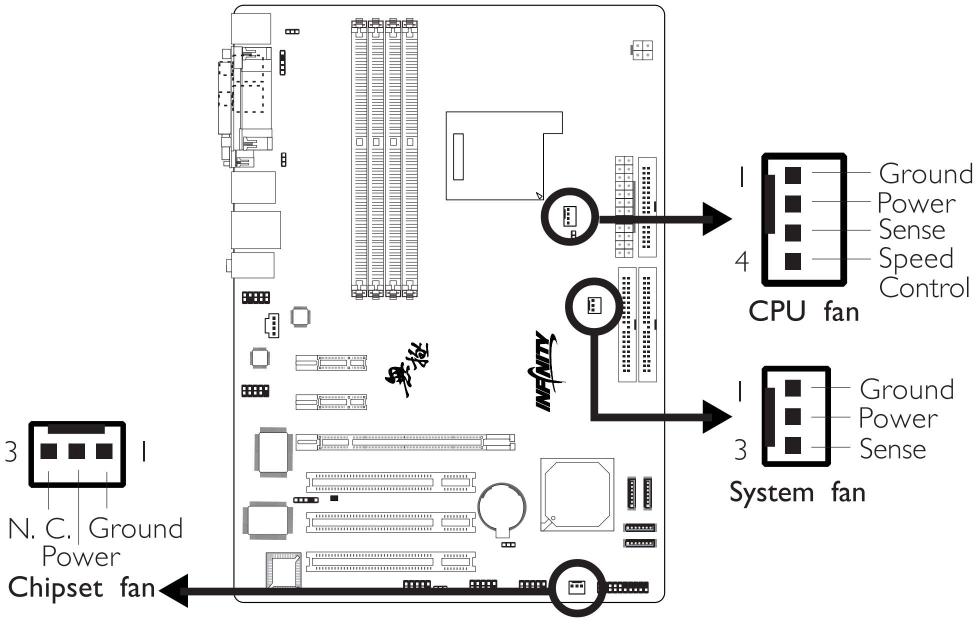
BIOS Setting

Configure IrDA in the Integrated Peripherals submenu ("Super IO Device" section) of the BIOS.

Driver Installation

You may need to install the proper drivers in your operating system to use the IrDA function. Refer to your operating system's manual or documentation for more information.

Cooling Fan Connectors

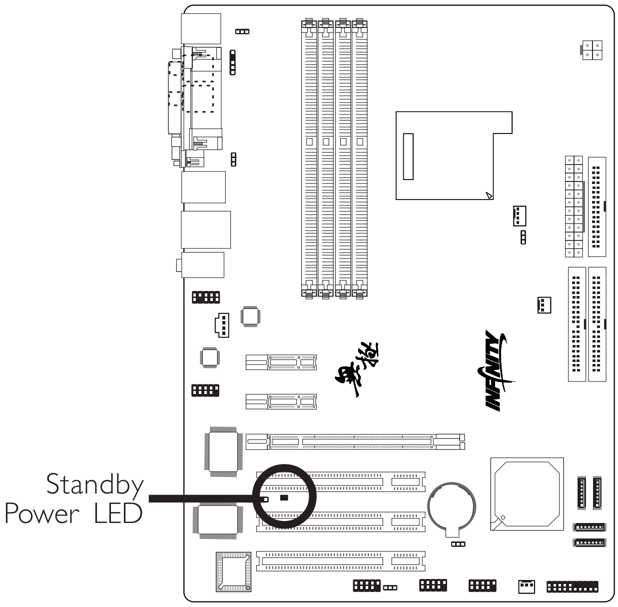


Connect the CPU fan's cable connector to the CPU fan connector (J30) on the system board. Chipset fan (J32) and System fan (J31) are used to connect additional cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

BIOS Setting

The "PC Health Status" submenu of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

Standby Power LED



Standby Power LED

This LED will light when the system is in the standby mode.

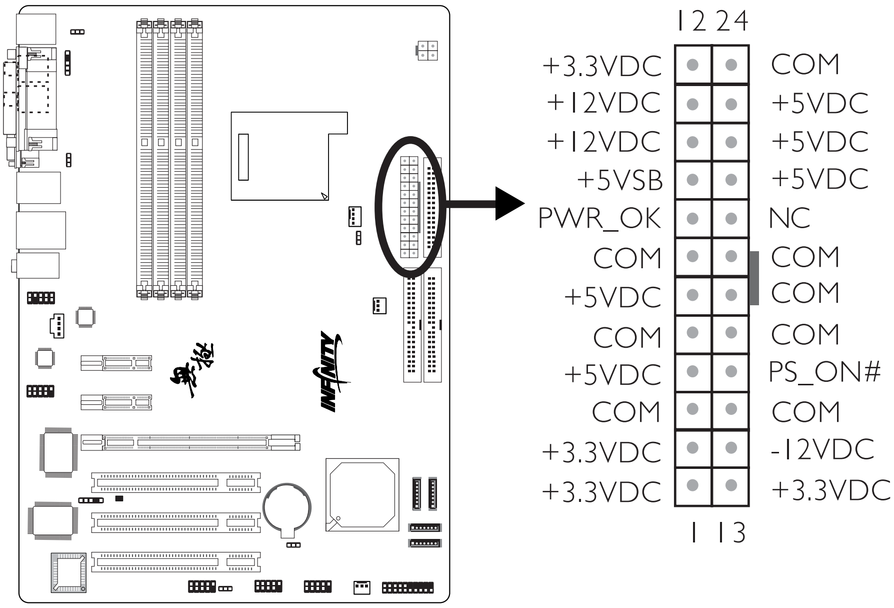


Warning:

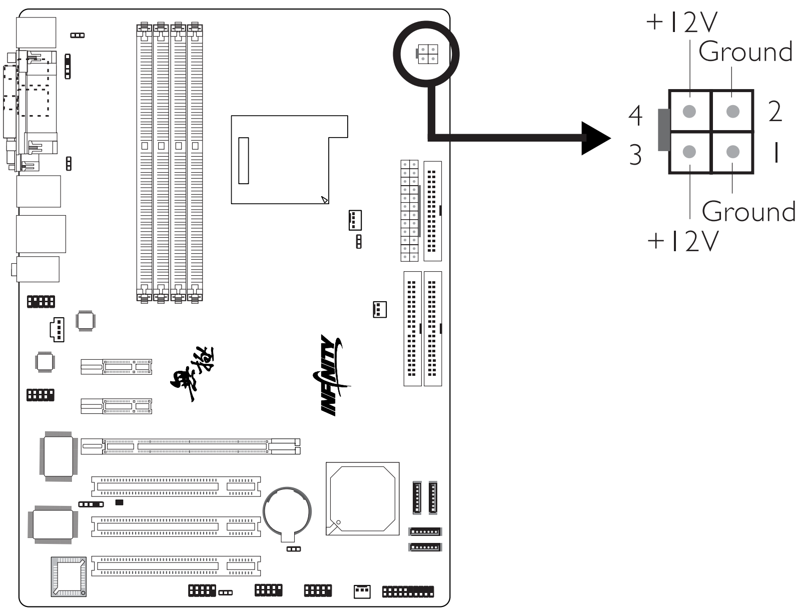
When the Standby Power LED lit red, it indicates that power is present on the PCI slots. Power-off the PC then unplug the power cord prior to installing any add-in cards. Failure to do so will cause severe damage to the motherboard and components.

Power Connectors

Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted onto CN10.



Your power supply unit also comes with a 4-pin +12V power connector. The +12V power enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM). Connect the 4-pin power connector to CN9.



The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, **we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.**

Important:
Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

Restarting the PC

Normally, you can power-off the PC by:

1. Pressing the power button at the front panel of the chassis.
   or
2. Pressing the power switch that is on the system board (note: not all system boards come with this switch).

If for some reasons you need to totally cut off the power supplied to the PC, switch off the power supply or unplug the power cord. Take note though that if you intend to restart it at once, please strictly follow the steps below.

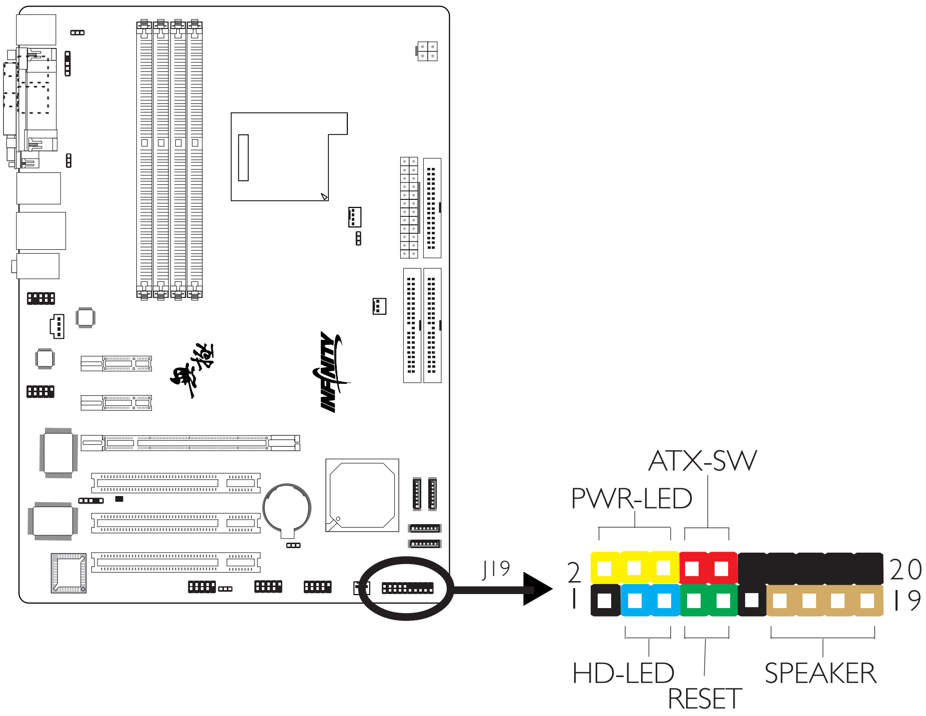
1. The time where power is totally discharged varies among power supplies. It's discharge time is highly dependent on the system's configuration such as the wattage of the power supply, the sequence of the supplied power as well as the number of peripheral devices connected to the system. Due to this reason, we strongly recommend that you wait for the Standby Power LED (refer to the "LEDs" section in this chapter for the location of the Standby Power LED) to lit off.

2. After the Standby Power LED has lit off, wait for 6 seconds before powering on the PC.

   If the system board is already enclosed in a chassis which apparently will not make the Standby Power LED visible, wait for 15 seconds before you restore power connections. 15 seconds is approximately the time that will take the LED to lit off and the time needed before restoring power.

The above will ensure protection and prevent damage to the motherboard and components.

Front Panel Connectors



HD-LED: Primary/Secondary IDE LED

This LED will light when the hard drive is being accessed.

RESET: Reset Switch

This switch allows you to reboot without having to power off the system thus prolonging the life of the power supply or system.

SPEAKER: Speaker Connector

This connects to the speaker installed in the system chassis.

ATX-SW: ATX Power Switch

Depending on the setting in the BIOS setup, this switch is a "dual function power button" that will allow your system to enter the Soft-Off or Suspend mode. Refer to "Soft-Off By PBTN" in the Power Management Setup (Chapter 3).

PWR-LED: Power/Standby LED

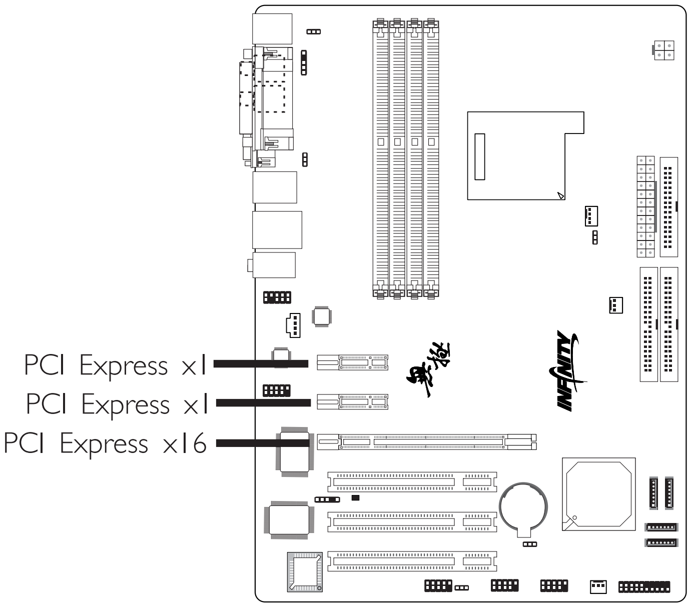
When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) or S3 (STR - Suspend To RAM) state, it will blink every second.

Note:

If a system did not boot-up and the Power/Standby LED did not light after it was powered-on, it may indicate that the CPU or memory module was not installed properly. Please make sure they are properly inserted into their corresponding socket.

	Pin	Pin Assignment
HD-LED (Primary/Secondary IDE LED)	3 5	HDD LED Power HDD
Reserved	14 16	N. C. N. C.
ATX-SW (ATX power switch)	8 10	PWRBT+ PWRBT-
Reserved	18 20	N. C. N. C.
RESET (Reset switch)	7 9	Ground H/W Reset
SPEAKER (Speaker connector)	13 15 17 19	Speaker Data N. C. Ground Speaker Power
PWR-LED (Power/Standby LED)	2 4 6	LED Power (+) LED Power (+) LED Power (-) or Standby Signal

PCI Express Slots



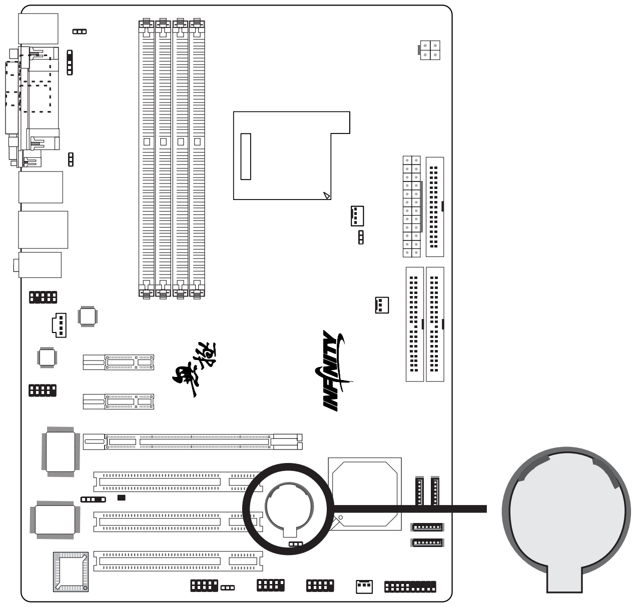
PCI Express x16

Install PCI Express x16 graphics card, that comply to the PCI Express specifications, into the PCI Express x16 slot. To install a graphics card into the x16 slot, align the graphics card above the slot then press it down firmly until it is completely seated in the slot. The retaining clip of the slot will automatically hold the graphics card in place.

PCI Express x1

Install PCI Express x1 cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x1 slot.

Battery



The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommend by the manufacturer.
- Dispose of used batteries according to the battery manufacturer's instructions.

Chapter 3 - BIOS Setup

Award BIOS Setup Utility

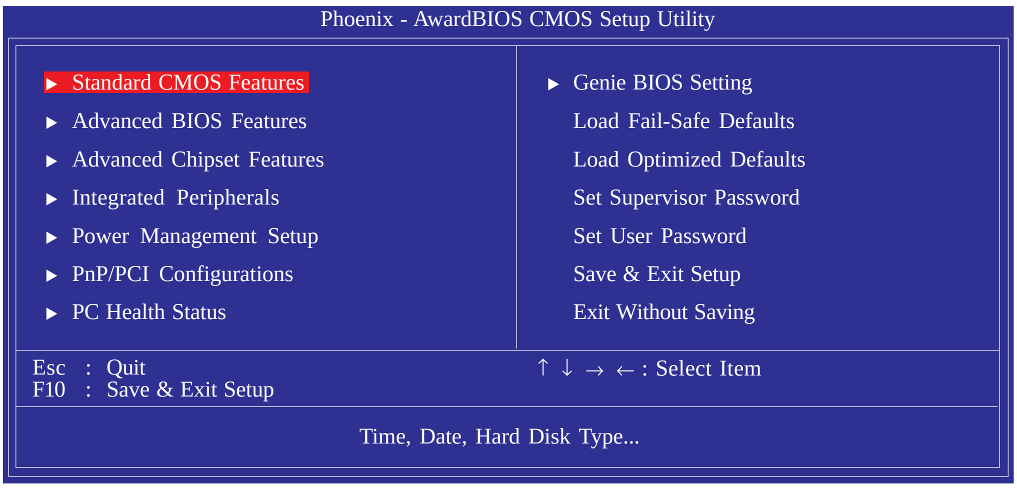
The Basic Input/Output System (BIOS) is a program that takes care of the basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features found in this system board. This chapter explains the Setup Utility for the Award BIOS.

After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the following message will appear on the screen:

Press DEL to enter setup

If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

When you press <Del>, the main menu screen will appear.



Standard CMOS Features

Use the arrow keys to highlight "Standard CMOS Features" and press <Enter>. A screen similar to the one below will appear.

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Standard CMOS Features

     Date  <mm:dd:yy>               Tue, Jun  6 2006          Item  Help
     Time  <hh:mm:ss>               9 : 3 : 54
                                                          Menu Level     ▶
  ▶  IDE Channel 0 Master           ST340823A
  ▶  IDE Channel 0 Slave            None                  Change the day, month,
  ▶  IDE Channel 1 Master           CD-532E               year  and  century
  ▶  IDE Channel 1 Slave            None
  ▶  IDE Channel 2 Master           None
  ▶  IDE Channel 3 Master           None
  ▶  IDE Channel 4 Master           None
  ▶  IDE Channel 5 Master           None

     Drive A                        1.44M, 3.5 in.
     Halt On                        All, But Keyboard

     Base  Memory
     Extended  Memory                  640K
     Total  Memory                  980992K
                                    982016K

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
     F5: Previous Values          F6: Fail-Safe Defaults          F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1994 to 2079.

Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

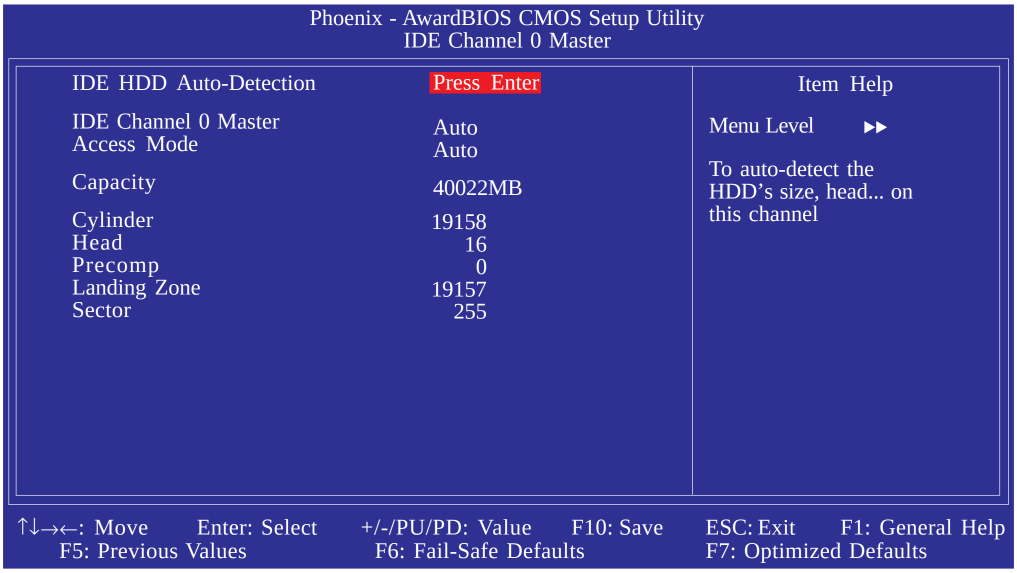
IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave and IDE Channel 2/3/4/5 Master

IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave	Used to configure Parallel ATA drives
IDE Channel 2 Master IDE Channel 3 Master IDE Channel 4 Master IDE Channel 5 Master	Used to configure Serial ATA drives

Note:

The NVIDIA nForce4 chip supports RAID arrays spanning across Serial ATA and Parallel ATA. Enable the RAID function in the Integrated Peripherals submenu, OnChip IDE Device section of the BIOS.

To configure the IDE drives, move the cursor to a field then press <Enter>. The following screen will appear.



The settings on the screen are for reference only. Your version may not be identical to this one.

IDE HDD Auto-Detection

Detects the parameters of the drive. The parameters will automatically be shown on the screen.

IDE Channel 0 Master/Slave and IDE Channel 1 Master/Slave

The drive type information should be included in the documentation from your hard disk vendor. If you select "Auto", the BIOS will auto-detect the HDD & CD-ROM drive at the POST stage and show the IDE for the HDD & CD-ROM drive. If a hard disk has not been installed, select "None".

Access Mode

For hard drives larger than 528MB, you would typically select the LBA type. Certain operating systems require that you select CHS or Large. Please check your operating system's manual or Help desk on which one to select.

Capacity

Displays the approximate capacity of the disk drive. Usually the size is slightly greater than the size of a formatted disk given by a disk checking program.

Cylinder

This field displays the number of cylinders.

Head

This field displays the number of read/write heads.

Precomp

This field displays the number of cylinders at which to change the write timing.

Landing Zone

This field displays the number of cylinders specified as the landing zone for the read/write heads.

Sector

This field displays the number sectors per track.

Drive A

This field identifies the type of floppy disk drive installed.

None	No floppy drive is installed
360K, 5.25 in.	5-1/4 in. standard drive; 360KB capacity
1.2M, 5.25 in.	5-1/4 in. AT-type high-density drive; 1.2MB capacity
720K, 3.5 in.	3-1/2 in. double-sided drive; 720KB capacity
1.44M, 3.5 in.	3-1/2 in. double-sided drive; 1.44MB capacity
2.88M, 3.5 in.	3-1/2 in. double-sided drive; 2.88MB capacity

Halt On

This field determines whether the system will stop if an error is detected during power up. The default setting is All Errors.

No Errors	The system boot will not stop for any errors detected.
All Errors	The system boot will stop whenever the BIOS detects a non-fatal error.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a disk or keyboard error; it will stop for all other errors.

Base Memory

Displays the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

Displays the amount of extended memory detected during boot-up.

Total Memory

Displays the total memory available in the system.

Advanced BIOS Features

The Advanced BIOS Features allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

```
Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

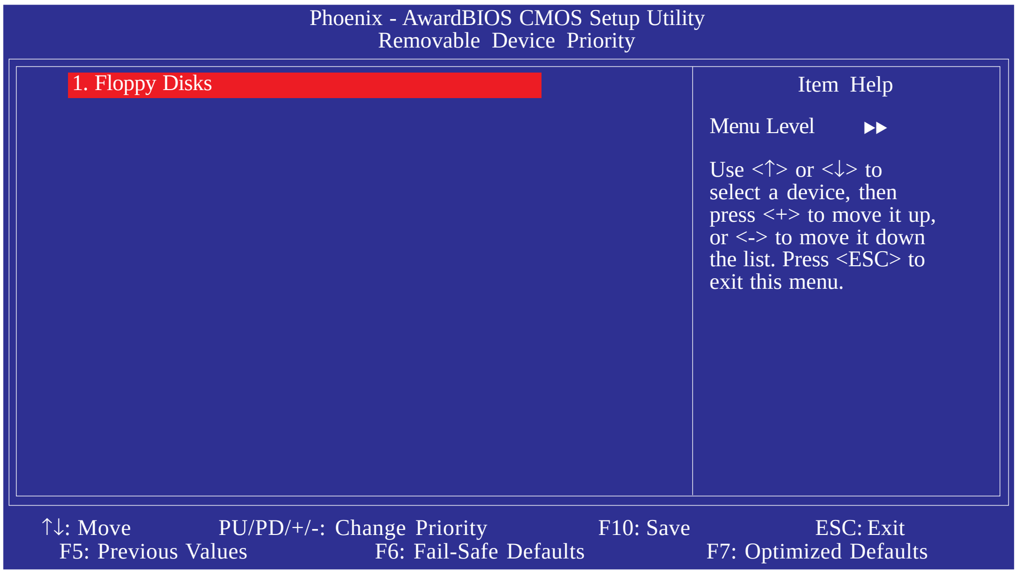
▶ Removable Device Priority          Press Enter      Item Help
▶ Hard Disk Boot Priority            Press Enter
▶ Network Boot Priority              Press Enter      Menu Level ▶
  Virus Warning                      Disabled
  CPU Internal Cache                 Enabled          Select Removable Boot
  External Cache                     Enabled          Device Priority
  Quick Power On Self Test           Enabled
  First Boot Device                  Removable
  Second Boot Device                 Hard Disk
  Third Boot Device                  CDROM
  Boot Other Device                  Enabled
  Boot Up Floppy Seek                Disabled
  Boot Up NumLock Status             On
  Typematic Rate Setting             Disabled
x Typematic Rate (Chars/Sec)         6
x Typematic Delay (Msec)             250
  Security Option                    Setup
  APIC Mode                          Enabled
  MPS Version Control For OS         1.4
  OS Select For DRAM > 64MB          Non-OS2
  HDD S.M.A.R.T. Capability          Disabled
  Full Screen LOGO Show              Disabled
  Small Logo(EPA) Show               Enabled

↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
   F5: Previous Values       F6: Fail-Safe Defaults         F7: Optimized Defaults
```

The screen above list all the fields available in the Advanced BIOS Features submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

Removable Device Priority

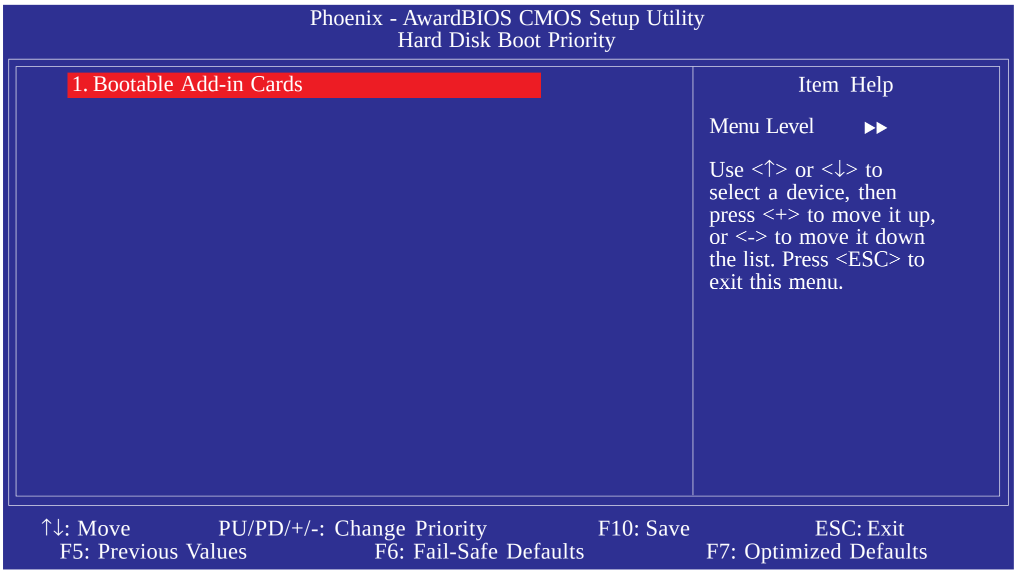
This field is used to select the boot sequence of the removable devices. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



The settings on the screen are for reference only. Your version may not be identical to this one.

Hard Disk Boot Priority

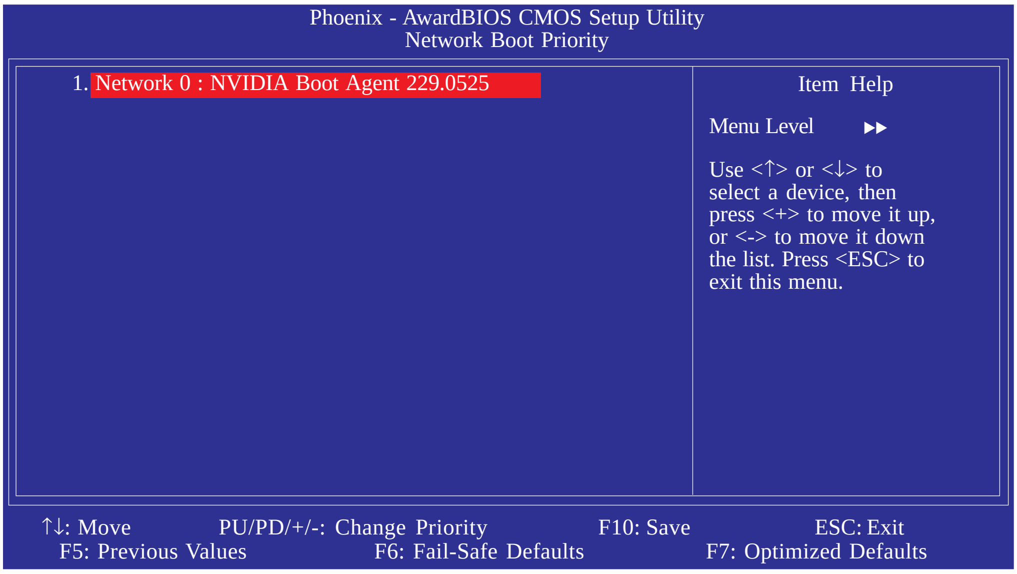
This field is used to select the boot sequence of the hard drives. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



The settings on the screen are for reference only. Your version may not be identical to this one.

Network Boot Priority

This field is used to select the boot sequence of the network. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press <+> to move it up or <-> to move it down the list.



The settings on the screen are for reference only. Your version may not be identical to this one.

Virus Warning

This field protects the boot sector and partition table of your hard disk drive. When this field is enabled, the Award BIOS will monitor the boot sector and partition table of the hard disk drive. If an attempt is made to write to the boot sector or partition table of the hard disk drive, the BIOS will halt the system and an error message will appear.

After seeing the error message, if necessary, you will be able to run an anti-virus program to locate and remove the problem before any damage is done.

Many disk diagnostic programs which attempt to access the boot sector table will cause the warning message to appear. If you are running such a program, we recommend that you first disable this field. Also, disable this field if you are installing or running certain operating systems like Windows® 95/98/2000 or the operating system may not install nor work.

CPU Internal Cache and External Cache

These fields speed up the memory access. The default is Enabled, which provides better performance by enabling cache.

Quick Power On Self Test

This field speeds up Power On Self Test (POST) whenever the system is powered on. The BIOS will shorten or skip some check items during POST. To attain the shortest POST time, select "Enabled".

First Boot Device, Second Boot Device, Third Boot Device and Boot Other Device

Select the drive to boot first, second and third in the "First Boot Device" "Second Boot Device" and "Third Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected. Set "Boot Other Device" to Enabled if you wish to boot from another device.

Boot Up Floppy Seek

When enabled, the BIOS will check whether the floppy disk drive installed is 40 or 80 tracks. Note that the BIOS cannot distinguish between 720K, 1.2M, 1.44M and 2.88M drive types as they are all 80 tracks. When disabled, the BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360KB.

Boot Up NumLock Status

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Typematic Rate Setting

Disabled Continually holding down a key on your keyboard will cause the BIOS to report that the key is down.

Enabled The BIOS will not only report that the key is down, but will first wait for a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. For example, you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the "Typematic Rate (Chars/Sec)" and "Typematic Delay (Msec)" fields below.

Typematic Rate (Chars/Sec)

This field allows you to select the rate at which the keys are accelerated.

Typematic Delay (Msec)

This field allows you to select the delay between when the key was first depressed and when the acceleration begins.

Security Option

This field determines when the system will prompt for the password - everytime the system boots or only when you enter the BIOS setup. Set the password in the Set Supervisor/User Password submenu.

System	The system will not boot and access to Setup will be denied unless the correct password is entered at the prompt.
Setup	The system will boot, but access to Setup will be denied unless the correct password is entered at the prompt.

APIC Mode

Leave this field in its default setting.

MPS Version Control for OS

This field is used to select the MPS version that the system board is using.

OS Select for DRAM > 64MB

Select the "OS2" option only if the system that is running an OS/2 operating system has greater than 64MB RAM.

HDD S.M.A.R.T. Capability

The system board supports SMART (Self-Monitoring, Analysis and Reporting Technology) hard drives. SMART is a reliability prediction technology for ATA/IDE and SCSI drives. The drive will provide sufficient notice to the system or user to backup data prior to the drive's failure. The default is Disabled. If you are using hard drives that support S.M.A.R.T., set this field to Enabled. SMART is supported in ATA/33 or later hard drives.

Full Screen Logo Show

This field is applicable only if you want a particular logo to appear during system boot-up.

Enabled The logo will appear in full screen during system boot-up.
Disabled The logo will not appear during system boot-up.

Small Logo(EPA) Show

Enabled The EPA logo will appear during system boot-up.
Disabled The EPA logo will not appear during system boot-up.

Advanced Chipset Features

```
Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

SSE/SSE2/SSE3 Instructions      Enabled         Item Help
System BIOS Cacheable           Disabled
SLI Broadcast Aperture          Disabled        Menu Level ▶▶

↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults
```

The settings on the screen are for reference only. Your version may not be identical to this one.

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources. **These items should not be altered unless necessary.** The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered some incompatibility or that data was being lost while using your system.

SSE/SSE2/SSE3 Instructions

The options are Enabled and Disabled.

System BIOS Cacheable

When this field is enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enabled. The larger the range of the Cache RAM, the higher the efficiency of the system.

SLI Broadcast Aperture

To enhance SLI's performance, set this field to Auto. However, enhanced performance is supported only if you are using NVIDIA graphics driver version 7.84 or later. If you are using an older version, you must disable this function otherwise you may encounter problems.

Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

Item	Setting
▶ OnChip IDE Device	Press Enter
▶ Onboard Device	Press Enter
▶ Super IO Device	Press Enter

Item Help

Menu Level ▶

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

OnChip IDE Device

Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device

Item	Setting
OnChip IDE Channel 0	Enabled
Primary Master PIO	Auto
Primary Slave PIO	Auto
Primary Master UDMA	Auto
Primary Slave UDMA	Auto
OnChip IDE Channel 1	Enabled
Secondary Master PIO	Auto
Secondary Slave PIO	Auto
Secondary Master UDMA	Auto
Secondary Slave UDMA	Auto
IDE DMA Transfer Access	Enabled
Serial-ATA Controller	All Enabled
IDE Prefetch Mode	Enabled
IDE HDD Block Mode	Enabled
***************** Onboard RAID Setting *****************	
RAID Enable	Disabled
x IDE Primary Master RAID	Disabled
x IDE Primary Slave RAID	Disabled
x IDE Secndry Master RAID	Disabled
x IDE Secndry Slave RAID	Disabled
x SATA 1 Primary RAID	Disabled
x SATA 1 Secondary RAID	Disabled
x SATA 2 Primary RAID	Disabled
x SATA 2 Secondary RAID	Disabled

Item Help

Menu Level ▶▶

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

OnChip IDE Channel0 and OnChip IDE Channel1

These fields allow you to enable or disable the primary and secondary IDE controller. The default is Enabled. Select Disabled if you want to add a different hard drive controller.

Primary Master/Slave PIO and Secondary Master/Slave PIO

PIO means Programmed Input/Output. Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode after checking your drive.

Auto	The BIOS will automatically set the system according to your hard disk drive's timing.
Mode 0-4	You can select a mode that matches your hard disk drive's timing. Caution: Do not use the wrong setting or you will have drive errors.

Primary Master/Slave UDMA and Secondary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

Auto	The BIOS will automatically detect the settings for you.
Disabled	The BIOS will not detect these categories.

IDE DMA Transfer Access

This field is used to enable or disable the DMA transfer function of an IDE hard drive.

Serial-ATA Controller

This field is used to select the Serial ATA channels you want enabled.

IDE Prefetch Mode

This allows data and addresses to be stored in the internal buffer of the chip, thus reducing access time. Enable this field to achieve better performance.

IDE HDD Block Mode

Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

Disabled The IDE HDD uses the standard mode.

RAID Enable

This field is used to enable or disable the RAID function of Parallel ATA drives and Serial ATA drives.

IDE Primary Master RAID and IDE Primary Slave RAID

These fields are used to enable or disable the RAID function of the primary IDE's master and slave channels.

IDE Secondary Master RAID and IDE Secondary Slave RAID

These fields are used to enable or disable the RAID function of the secondary IDE's master and slave channels.

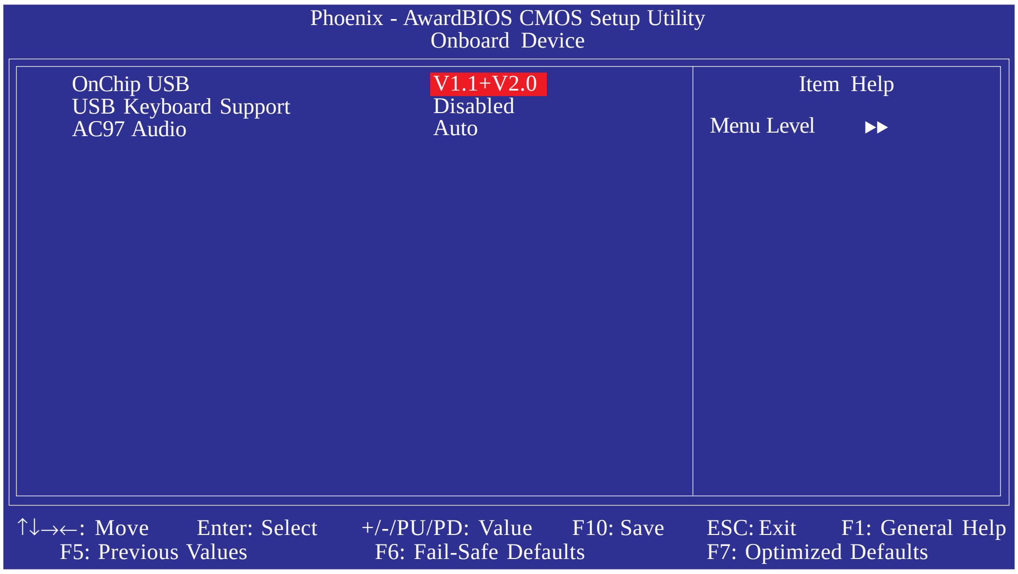
SATA 1 Primary RAID and SATA 1 Secondary RAID

These fields are used to enable or disable the RAID function of Serial ATA's first channel (SATA 1 and SATA 2).

SATA 2 Primary RAID and SATA 2 Secondary RAID

These fields are used to enable or disable the RAID function of Serial ATA's second channel (SATA 3 and SATA 4).

Onboard Device



The settings on the screen are for reference only. Your version may not be identical to this one.

OnChip USB

This field is used to enable or disable USB 2.0.

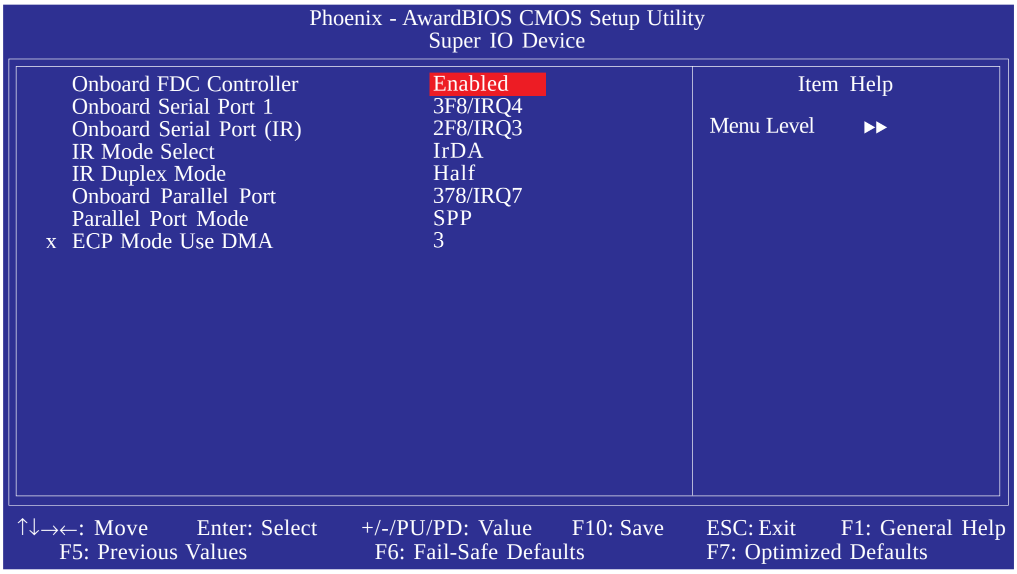
USB Keyboard Support

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices. If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

AC97 Audio

Auto Select this option when using the onboard audio.
Disabled Select this option when using a PCI sound card.

Super IO Device



The settings on the screen are for reference only. Your version may not be identical to this one.

Onboard FDC Controller

Enabled Enables the onboard floppy disk controller.
Disabled Disables the onboard floppy disk controller.

Onboard Serial Port 1

Auto The system will automatically select an I/O address for the onboard serial port.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the onboard serial port.
Disabled Disables the onboard serial port.

Onboard Serial Port (IR)

Auto The system will automatically select an I/O address for the IR device.
3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3 Allows you to manually select an I/O address for the IR device.
Disabled Disables the IR device.

IR Mode Select

This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30° angle and within a distance of 1 meter.

IR Duplex Mode

Half Data is completely transmitted before receiving data.
Full Transmits and receives data simultaneously.

Onboard Parallel Port

378/IRQ7, 3BC/IRQ7, 278/IRQ5 Selects the I/O address and IRQ for the onboard parallel port.
Disabled Disables the onboard parallel port.

Parallel Port Mode

The options are SPP, EPP, ECP and ECP+EPP. These apply to a standard specification and will depend on the type and speed of your device. Refer to your peripheral's manual for the best option.

SPP
Allows normal speed operation but in one direction only.

"ECP (Extended Capabilities Port)"
Allows parallel port to operate in bidirectional mode and at a speed faster than the normal mode's data transfer rate.

"EPP (Enhanced Parallel Port)"
Allows bidirectional parallel port operation at maximum speed.

ECP Mode Use DMA

This field is used to select a DMA channel for the parallel port.

Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy.

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

	ACPI Function	Enabled	Item Help
	ACPI Suspend Type	S1(POS)	Menu Level ▶
	Power Management	User Define	
	HDD Power Down	Disabled	
	HDD Down In Suspend	Disabled	
	Soft-Off By PBTN	Instant-Off	
	Wake Up On LAN	Disabled	
	Resume By Ring	Disabled	
	Resume By Alarm	Disabled	
x	Day of Month Alarm	0	
x	Time (hh:mm:ss) Alarm	0 : 0 : 0	
	Power On Function	BUTTON ONLY	
x	Hot Key Power On	Ctrl-F1	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

ACPI Function

This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "HDD Power Down" field. If you want to use the Suspend to RAM function, make sure this field is enabled then select "S3(STR)" in the field below.

ACPI Suspend Type

This field is used to select the type of Suspend mode.

S1(POS) Enables the Power On Suspend function.
S3(STR) Enables the Suspend to RAM function.

Power Management

This field allows you to select the type (or degree) of power saving by changing the length of idle time that elapses before the "HDD Power Down" field is activated.

Min Saving	Minimum power saving time for the "HDD Power Down" = 15 min.
Max Saving	Maximum power saving time for the "HDD Power Down" = 1 min.
User Define	Allows you to set the power saving time in the "HDD Power Down" field.

HDD Power Down

This is selectable only when the Power Management field is set to User Define. When the system enters the HDD Power Down mode according to the power saving time selected, the hard disk drive will be powered down while all other devices remain active.

HDD Down In Suspend

The default setting is Disabled. When enabled, the hard drive will be powered off once the system enters the Suspend mode.

Soft-Off by PBTN

This field allows you to select the method of powering off your system.

Delay 4 Sec.	Regardless of whether the Power Management function is enabled or disabled, if the power button is pushed and released in less than 4 sec, the system enters the Suspend mode. The purpose of this function is to prevent the system from powering off in case you accidentally "hit" or pushed the power button. Push and release again in less than 4 sec to restore. Pushing the power button for more than 4 seconds will power off the system.
Instant-Off	Pressing and then releasing the power button at once will immediately power off your system.

Wake Up On LAN

Set this field to Enabled to wake up the system via the onboard LAN or via a LAN card that uses the PCI PME (Power Management Event) signal to remotely wake up the system. Access to the LAN card will cause the system to wake up. Refer to the card's documentation for more information.

Resume By Ring

When this field is set to Enabled, the system will power-on to respond to calls coming from an external modem.

Power-On By Alarm

Enabled	When Enabled, you can set the time you would like the Soft Power Down (Soft-Off) PC to power-on in the "Time (dd:hh:mm) of Alarm" field. However, if the system is being accessed by incoming calls or the network prior to the time set in the field, the system will give priority to the incoming calls or network.
Disabled	Disables the automatic power-on function. (default)

Day of Month Alarm

0	The system will power-on everyday according to the time set in the "Time (hh:mm:ss) Alarm" field.
1-31	Select a date you would like the system to power-on. The system will power-on on the set date, and time set in the "Time (hh:mm:ss) Alarm" field.

Time (hh:mm:ss) of Alarm

This is used to set the time you would like the system to power-on.

Power On Function

This field allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

Button only	Default setting. Uses the power button to power on the system.
Hot Key	Select the function key you would like to use to power-on the system in the "Hot Key Power On" field.
Mouse Move	Move the PS/2 mouse to wake up the system.
Mouse Click	Click the PS/2 mouse to wake up the system.
Any Key	Press any key to power-on the system.
Keyboard 98	Press the "wake up" key of the Windows® 98 compatible keyboard to power-on the system.

Hot Key Power On

This field is used to select a function key that you would like to use to power-on the system.

PnP/PCI Configurations

This section describes configuring the PCI bus system. It covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Resources Controlled By	Auto	Item Help
x IRQ Resources	Press Enter	Menu Level ▶
PCI/VGA Palette Snoop	Disabled	Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.
** PCI Express Relative Items **		
Maximum Payload Size	4096	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The settings on the screen are for reference only. Your version may not be identical to this one.

Resources Controlled By

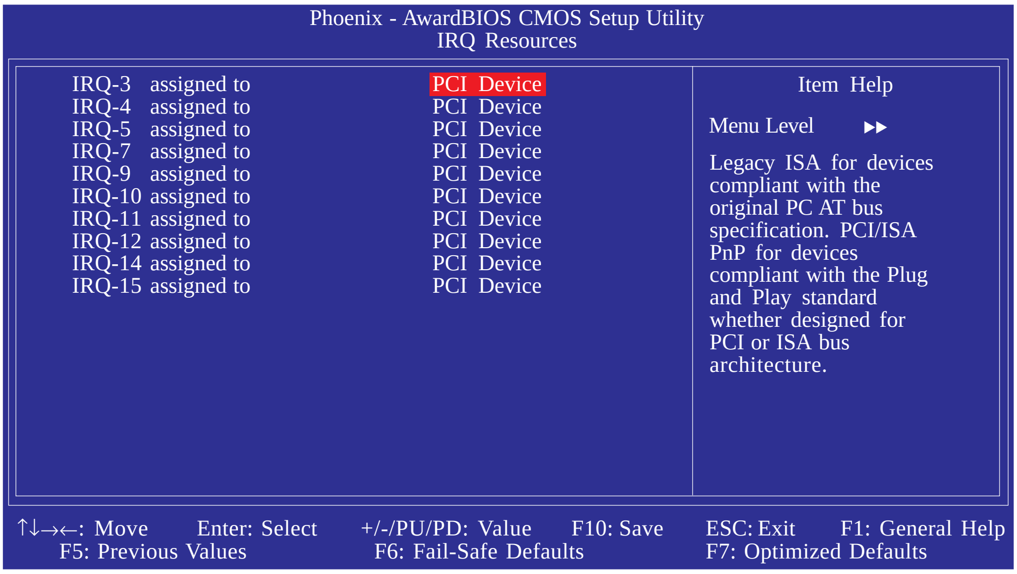
The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices.

Auto(ESCD) The system will automatically detect the settings for you.

Manual Choose the specific IRQ in the "IRQ Resources" field.

IRQ Resources

Move the cursor to this field and press <Enter>. This field is used to set each system interrupt to either Reserved or PCI Device.



The settings on the screen are for reference only. Your version may not be identical to this one.

PCI/VGA Palette Snoop

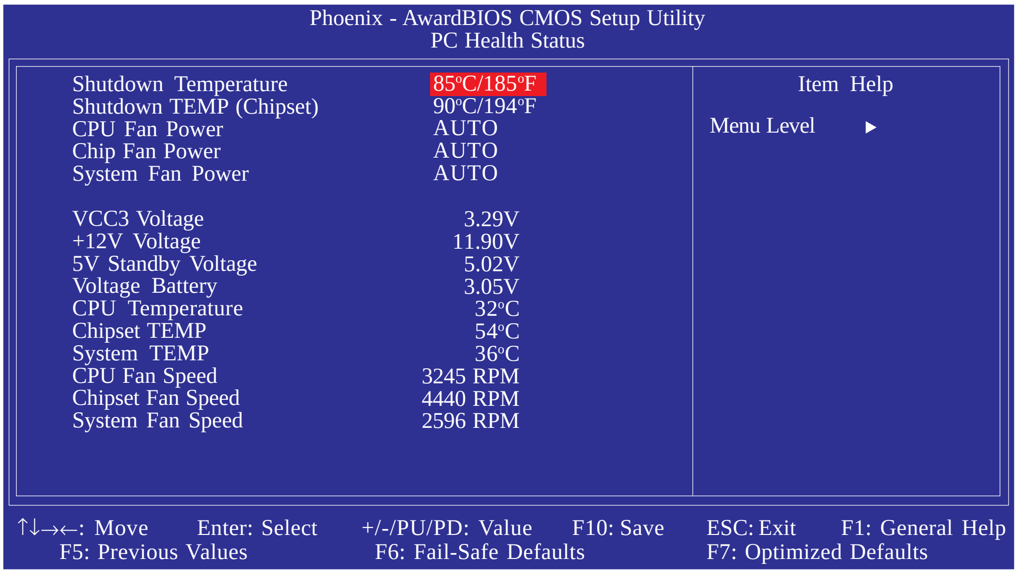
This field determines whether the MPEG ISA/VESA VGA cards can work with PCI/VGA or not.

Enabled MPEG ISA/VESA VGA cards work with PCI/VGA.
Disabled MPEG ISA/VESA VGA cards does not work with PCI/VGA.

Maximum Payload Size

This field is used to select the maximum TLP payload size of the PCI Express devices. The unit is byte.

PC Health Status



The settings on the screen are for reference only. Your version may not be identical to this one.

Shutdown Temperature

You can prevent the system from overheating by selecting a temperature in this field. If the system detected that the CPU temperature exceeded the temperature set in this field, it will automatically shutdown.

Shutdown Temperature (Chipset)

You can prevent the system from overheating by selecting a temperature in this field. If the system detected that the Chipset temperature exceeded the temperature set in this field, it will automatically shutdown.

CPU/Chip/System Fan Power

Auto Enables the Smart Fan function. The speed of the fan will rotate according to the current temperature.

60%, 70%, 80%, 90% These options allow you to manually select the speed of the fan.

VCC3 Voltage to System Fan Speed

These fields will show the output voltage, temperature and fan speed of the monitored devices or components.

Important:

The maximum operating temperature of an AMD CPU is 70°C while the maximum operating temperature of the NVIDIA chipset is 90°C.

Refer to the PC Health Status or the Smart Guardian utility for the current CPU and chipset temperatures. Ensure that the CPU and chipset temperatures does not exceed 60°C and 80°C respectively as these are most ideal for providing safe and stable system condition. You can control these temperatures or reduce the fan's noise by adjusting the fan speed in the "CPU/Chip/System Fan Power" field. The faster the fan speed, the lower the temperature.

Genie BIOS Setting

Phoenix - AwardBIOS CMOS Setup Utility
Genie BIOS Setting

▶ DRAM Configuration	Press Enter	Item Help
AMD K8 Cool'n'Quiet Control	Auto	Menu Level ▶
=========== Ratio & Clock Setting =========		DRAM timing and control
CPU FSB Ratio Setting	Auto	
CPU'n'NB Bus Ratio Setting	Auto	
CPU Clock Setting	200MHz	
DRAM Speed	Auto	
CPU'n'NB Bus Width	↓16 ↑16	
PCIE Clock Setting	100MHz	
============ Voltage Setting ============		
CPU Voltage Setting	Default	
DRAM Voltage Setting	Auto	
Chip Voltage Setting	1.5V	
HT Voltage Setting	1.2V	
Current CPU Voltage	1.36V	
Current DRAM Voltage	1.96V	
Current Chipset Voltage	1.47V	
Current HT Voltage	1.20V	
============ Miscellaneous ============		
PCI eXpress Configuration	16X 2X	
Init Display First	PCIEx-Master	
CPU Spread Spectrum	Disabled	
SATA Spread Spectrum	Disabled	
PCIE Spread Spectrum	Disabled	
ACPI XSDT Table	Enabled	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The screen above list all the fields available in the Genie BIOS Setting submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

DRAM Configuration

Move the cursor to this field and press <Enter>. The following screen will appear.

Phoenix - AwardBIOS CMOS Setup Utility
DRAM Configuration

	1T/2T Memory Timing	Auto	Item Help
	CAS# Latency (Tcl)	Auto	Menu Level ▶▶
	DDRII Timing Item	Disabled	
x	TwTr Command Delay	3 bus clocks	
x	Trfc0 for DIMM0	75ns	
x	Trfc1 for DIMM1	75ns	
x	Trfc2 for DIMM2	75ns	
x	Trfc3 for DIMM3	75ns	
x	(Twr) Write Recovery Time	6 bus clocks	
x	(Trtp) Precharge Time	3 clocks	
x	(Trc) Row Cycle Time	26 bus clocks	
x	(Trcd) RAS to CAS R/W Delay	6 clocks	
x	(Trrd) RAS to RAS Delay	5 clocks	
x	(Trp) Row Precharge Time	6 clocks	
x	(Tras) Minimum RAS Active Time	18 bus clocks	
	DRAM Output Driving	Level 1	
	DQS Training Control	Skip DQS	
	CKE Base Power Down Mode	Disabled	
	CKE Based Power Down	Per Channel	
	Memclock Tri-stating	Disabled	
	Memory Hole Remapping	Enabled	
	Auto Optimize Bottom IO	Enabled	
x	Bottom of [31:24] IO Space	C0	
	DRAM ECC Enable	Disabled	
x	DRAM MCE Enable	Disabled	
x	Chip-Kill Mode Enable	Disabled	
x	DRAM ECC Redirection	Disabled	
x	DRAM Background Scrubber	Disabled	
x	L2 Cache Background Scrubber	Disabled	
x	DCache Background Scrubber	Disabled	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The screen above list all the fields available in the DRAM Configuration submenu, for ease of reference in this manual. In the actual CMOS setup, you have to use the scroll bar to view the fields. The settings on the screen are for reference only. Your version may not be identical to this one.

1T/2T Memory Timing

2T timing which provides better system stability is supported in CG or later revisions of the AMD Athlon™ 64 CPU. This field will not appear if you are using a CPU whose version is older than the CG revision.

Auto Automatically detects the memory timing.

1T Sets the memory timing to Performance mode. Select this mode for better system performance.

2T Sets the memory timing to Normal mode. Select this mode if you encounter system instability. (default)

CAS# Latency (Tcl)

This field is used to select the clock cycle of the CAS latency time. The option selected specifies the timing delay before SDRAM starts a read command after receiving it.

DDRII Timing Item

The options are Enabled and Disabled.

TwTr Command Delay

The options are Reserved, 1 bus clock, 2 bus clocks and 3 bus clocks.

Trfc0 for DIMM0, Trfc1 for DIMM1, Trfc2 for DIMM2 and Trfc3 for DIMM3

These fields are used to select the auto refresh cycle time.

(Twr) Write Recovery Time

This field is used to select the write recovery time when the DRAM safely registers the last write data. This is the time from the last write data to precharge.

(Trtp) Precharge Time

This field is used to select the precharge time.

(Trc) Row Cycle Time

This field is used to select the row cycle time, RAS# active or auto refresh of the same bank.

(Trcd) RAS to CAS R/W Delay

When DRAM refreshes, both rows and columns are addressed separately. This field is used to select the delay time from RAS (Row Address Strobe) to CAS (Column Address Strobe) when reading and writing to the same bank. The lesser the clock cycle, the faster the DRAM's performance.

(Trrd) RAS to RAS Delay

This field is used to select the delay time from RAS (Row Address Strobe) to the next RAS (Row Address Strobe) when reading to the same bank. The lesser the clock cycle, the faster the DRAM's performance.

(Trp) Row Precharge Time

This field is used to select the number of cycles that is allowed for Row Address Strobe (RAS) to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refreshes, refreshing may be incomplete and DRAM may fail to retain data.

(Tras) Minimum RAS Active Time

This field is used to select the minimum time RAS takes to read from and write to a memory cell.

DRAM Output Driving

This field is used to select the DRAM output driving value.

DQS Training Control

The options are Skip DQS and Perform DQS.

CKE Base Power Down Mode

The options are Enabled and Disabled.

CKE Based Power Down

The options are Per Channel and Per CS.

Memclock Tri-stating

The options are Enabled and Disabled.

Memory Hole Remapping

The options are Enabled and Disabled.

Auto Optimize Bottom IO

The options are Enabled and Disabled.

Bottom of [31:24] IO Space

This field is used to select the memory that will be remapped to another address higher than 00E0.

DRAM ECC Enable

This field is used to enable or disable the DRAM's ECC feature. When enabled, it allows the system to automatically correct and re-cover from memory failure.

DRAM MCE Enable

The options are Enabled and Disabled.

Chip-Kill Mode Enable

The options are Enabled and Disabled.

DRAM ECC Redirection

The options are Enabled and Disabled.

DRAM Background Scrubber

This field allows the DRAM scrubbing feature to correct memory errors.

L2 Cache Background Scrubber

This field corrects the memory errors of the L2 data cache RAM.

DCache Background Scrubber

This field corrects the memory errors of the L1 data cache RAM.

AMD K8 Cool 'n' Quiet Control

Auto Enables AMD's Cool'n'Quiet technology. This function allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by changing its CPU speed and voltage, subsequently decreasing its noise level.

Disabled Disables AMD's Cool'n'Quiet technology.

CPU FSB Ratio Setting

This field is used to select the CPU FSB ratio.

CPU'n'NB Bus Ratio Setting

This field is used to select the bus ratio between the CPU and north bridge.

CPU Clock Setting

This field provides several options for selecting the external system bus clock of the processor. The available options allow you to adjust the processor's bus clock by 1MHz increment.

Important:
Selecting an external bus clock other than the default setting may result to the processor's or system's instability and are not guaranteed to provide better system performance.

DRAM Speed

This field is used to select the clock speed of the DIMM.

CPU'n'NB Bus Width

This field is used to select the LDT bus transfer width between the CPU and north bridge.

PCIE Clock Setting

This field is used to select the PCI Express clock.

CPU Voltage Setting

This field allows you to manually adjust to a higher core voltage that is supplied to the CPU.

DRAM Voltage Setting

This field allows you to manually select higher voltage supplied to the DRAM.

Chip Voltage Setting

This field allows you to manually select higher voltage supplied to the north bridge chip.

HT Voltage Setting

This field allows you to manually select higher voltage supplied to the south bridge chip.

Important:
Although the CPU / DRAM / Chip / HT overvoltage is supported, we do not recommend that you use a higher voltage because unstable current may be supplied to the system board causing damage.

Current CPU Voltage

This field will show the CPU's current voltage.

Current DRAM Voltage

This field will show the DRAM's current voltage.

Current Chipset Voltage

This field will show the north bridge chip's current voltage.

Current HT Voltage

This field will show the south bridge chip's current voltage.

PCI eXpress Configuration

This field is used to configure PCI Express.

Init Display First

PCIEx-Master	When the system boots, it will first initialize the PCI Express Master graphics card.
PCIEx-Slave	When the system boots, it will first initialize the PCI Express Slave graphics card.
PCI Slot	When the system boots, it will first initialize PCI.

CPU Spread Spectrum

The options are Disabled and Center Spread.

SATA Spread Spectrum

The options are Disabled and Down Spread.

PCIE Spread Spectrum

The options are Disabled and Down Spread.

ACPI XSDT Table

The options are Enabled and Disabled.

Hot Keys

Clearing the CMOS Data

If the overclocked settings resulted to the system's instability or worse yet, not being able to boot up the system, you can clear the CMOS data during system boot up by using the Insert key and power/reset button. This bypasses the process of opening the chassis to reset the Clear CMOS jumper.

1. Power-off the system.
2. Press the Insert key and power button simultaneously until the system reboots. This will load all BIOS settings back to their default values.

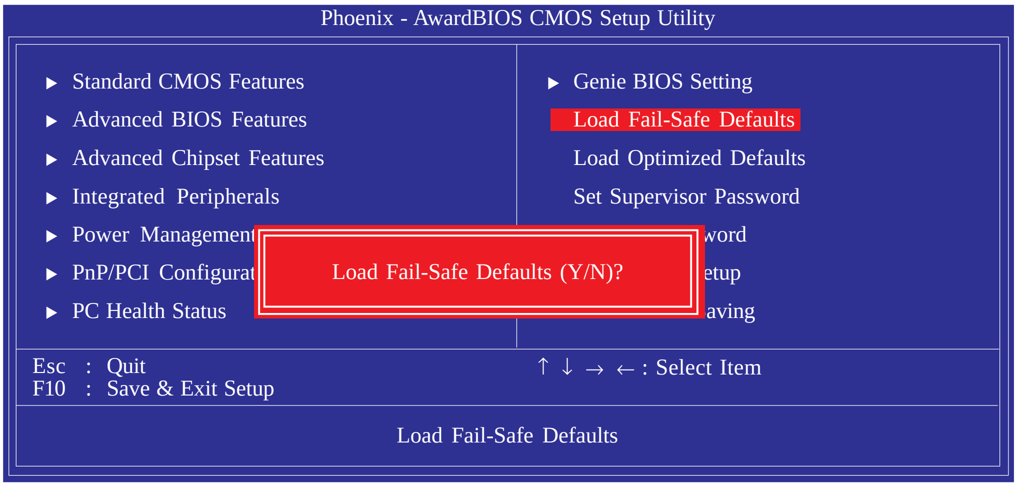
Loading the Default CPU Clock

If overclocking the CPU clock caused the system to hang, follow the steps below to reload the default CPU clock.

1. Power-off the system.
2. Press the Home key and power button simultaneously until the system reboots.

Load Fail-Safe Defaults

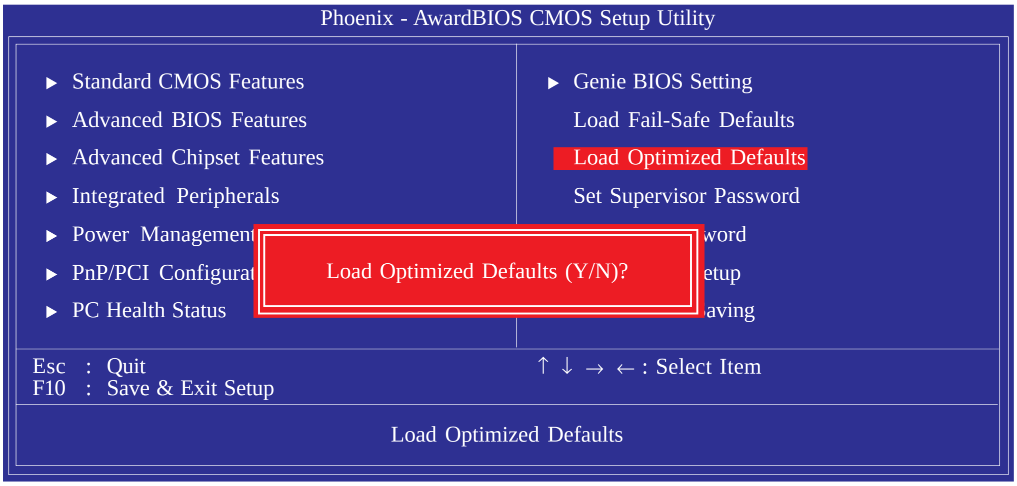
The "Load Fail-Safe Defaults" option loads the troubleshooting default values permanently stored in the ROM chips. These settings are not optimal and turn off all high performance features. You should use these values only if you have hardware problems. Highlight this option in the main menu and press <Enter>.



If you want to proceed, type <Y> and press <Enter>. The default settings will be loaded.

Load Optimized Defaults

The "Load Optimized Defaults" option loads optimized settings from the BIOS ROM. Use the default values as standard values for your system. Highlight this option in the main menu and press <Enter>.

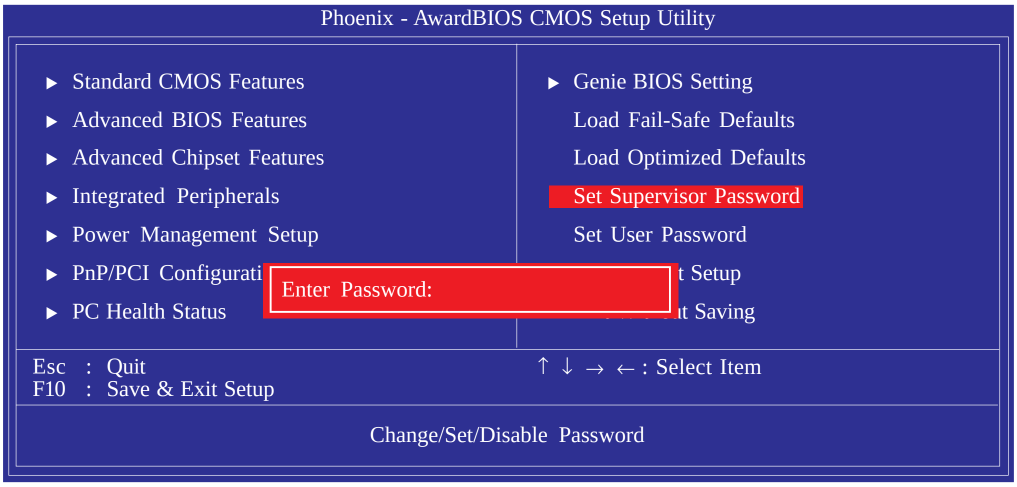


Type <Y> and press <Enter> to load the Setup default values.

Set Supervisor Password

If you want to protect your system and setup from unauthorized entry, set a supervisor's password with the "System" option selected in the Advanced BIOS Features. If you want to protect access to setup only, but not your system, set a supervisor's password with the "Setup" option selected in the Advanced BIOS Features. You will not be prompted for a password when you cold boot the system.

Use the arrow keys to highlight "Set Supervisor Password" and press <Enter>.



Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

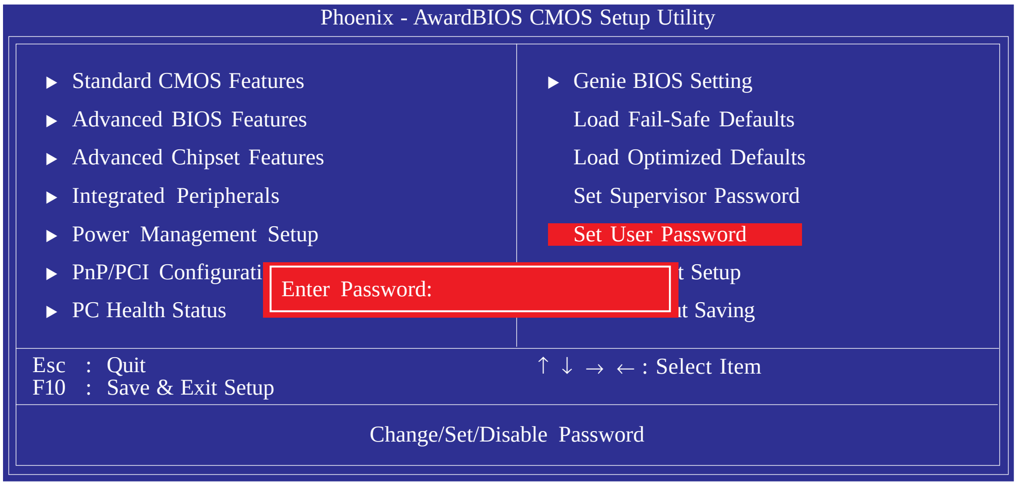
You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set Supervisor Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

Set User Password

If you want another user to have access only to your system but not to setup, set a user's password with the "System" option selected in the Advanced BIOS Features. If you want a user to enter a password when trying to access setup, set a user's password with the "Setup" option selected in the Advanced BIOS Features.

Using user's password to enter Setup allows a user to access only "Set User Password" that appears in the main menu screen. Access to all other options is denied.

Use the arrow keys to highlight "Set User Password" and press <Enter>.



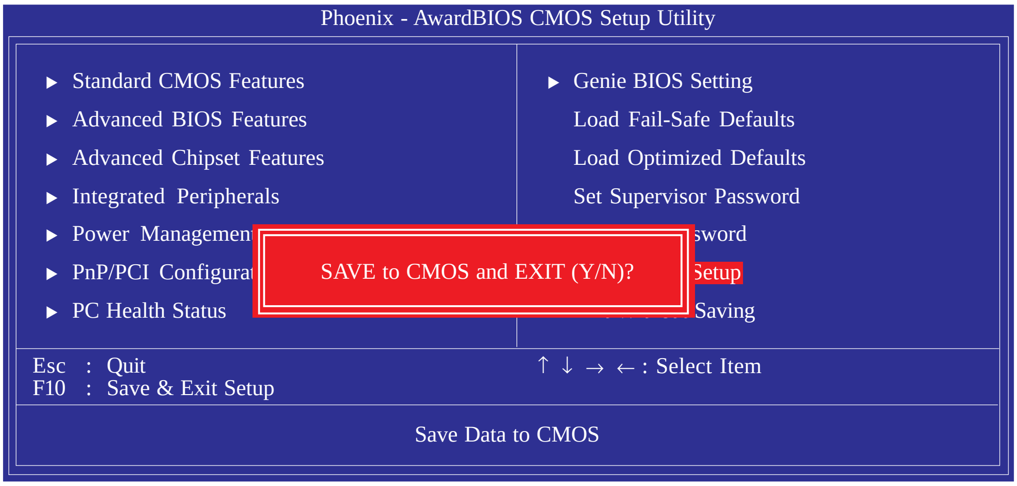
Type in the password. You are limited to eight characters. When done, the message below will appear:

Confirm Password:

You are asked to verify the password. Type in exactly the same password. If you type in a wrong password, you will be prompted to enter the correct password again. To delete or disable the password function, highlight "Set User Password" and press <Enter>, instead of typing in a new password. Press the <Esc> key to return to the main menu.

Save & Exit Setup

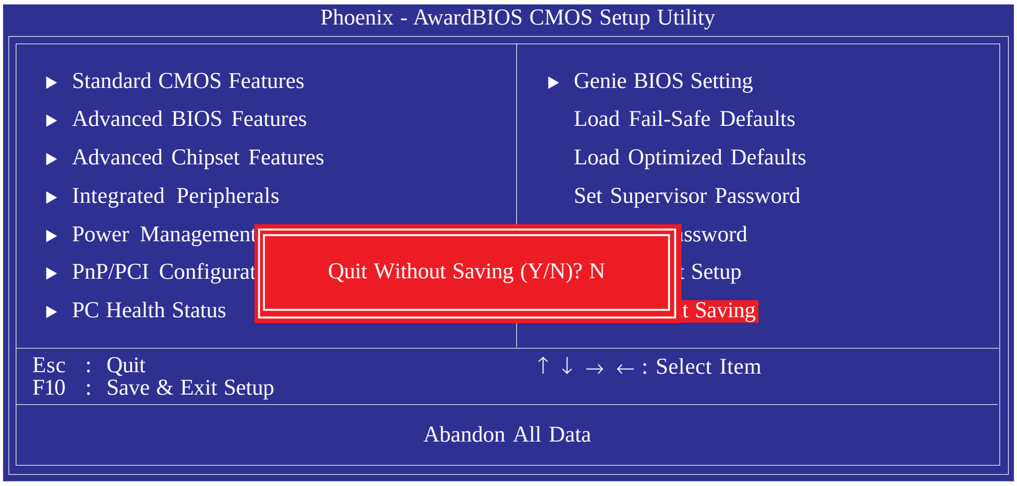
When all the changes have been made, highlight "Save & Exit Setup" and press <Enter>.



Type "Y" and press <Enter>. The modifications you have made will be written into the CMOS memory, and the system will reboot. You will once again see the initial diagnostics on the screen. If you wish to make additional changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

Exit Without Saving

When you do not want to save the changes you have made, highlight "Exit Without Saving" and press <Enter>.



Type "Y" and press <Enter>. The system will reboot and you will once again see the initial diagnostics on the screen. If you wish to make any changes to the setup, press <Ctrl> <Alt> <Esc> simultaneously or <Del> after memory testing is done.

NVRAID BIOS

The NVRAID BIOS utility is used to configure and manage RAID on Serial ATA drives and Parallel ATA drives.

After you power up the system and all drives have been detected, the NVRAID BIOS status message screen will appear. Press the <F10> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives and Parallel ATA drives.

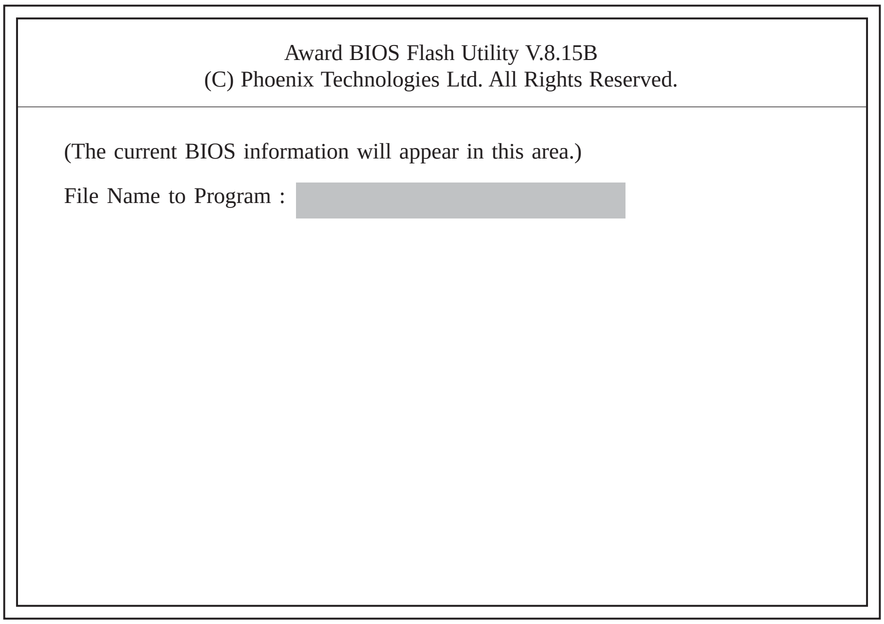
Refer to chapter 6 for steps in configuring RAID.

Important:
Before creating RAID, make sure you have installed the Serial/Parallel ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.

Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility, AWDFLASH.EXE. You can download them from DFI's web site or contact technical support or your sales representative.

1. Save the new BIOS file along with the flash utility AWDFLASH.EXE to a floppy disk.
2. Reboot the system and enter the Award BIOS Setup Utility to set the first boot drive to "Floppy".
3. Save the setting and reboot the system.
4. After the system booted from the floppy disk, execute the flash utility by typing AWDFLASH.EXE. The following screen will appear.



5. Type the new BIOS file name onto the gray area that is next to "File Name to Program" then press <Enter>.

6. The following will appear.

Do You Want to Save BIOS (Y/N)

This question refers to the current existing BIOS in your system. We recommend that you save the current BIOS and its flash utility; just in case you need to reinstall the BIOS. To save the current BIOS, press <Y> then enter the file name of the current BIOS. Otherwise, press <N>.

7. The following will then appear.

Press "Y" to Program or "N" to Exit

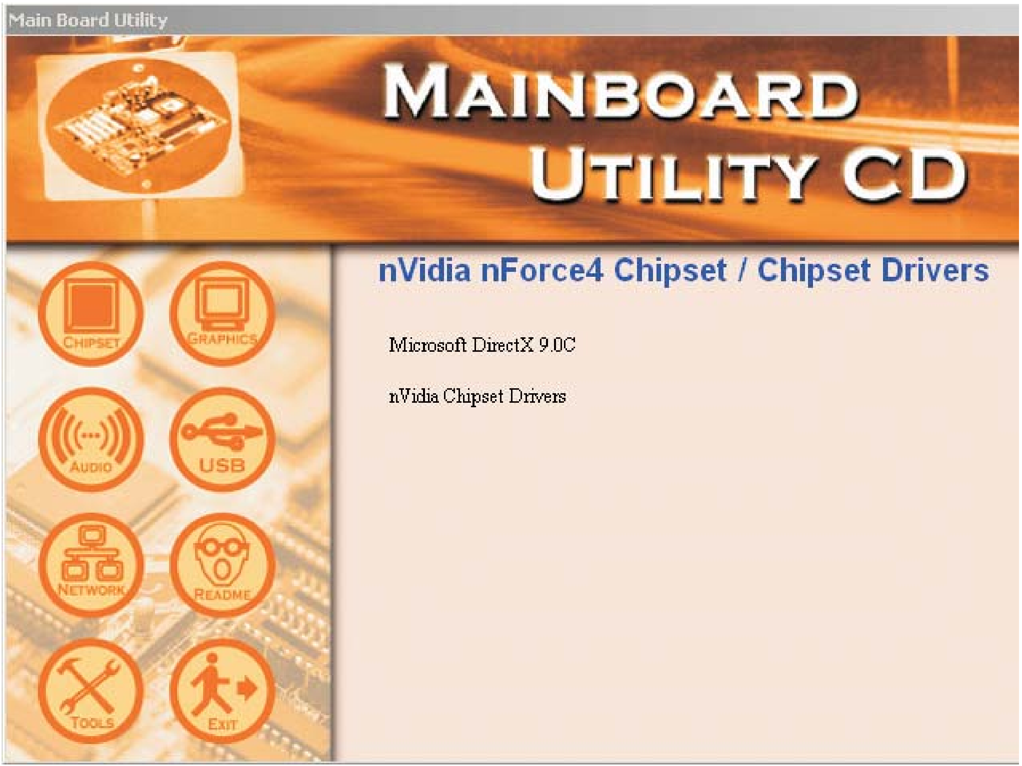
8. Press <Y> to flash the new BIOS.

Chapter 4 - Supported Software

Drivers, Utilities and Software Applications

The CD that came with the system board contains drivers, utilities and software applications required to enhance the performance of the system board.

Insert the CD into a CD-ROM drive. The autorun screen (Mainboard Utility CD) will appear. If after inserting the CD, "Autorun" did not automatically start (which is, the Mainboard Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".



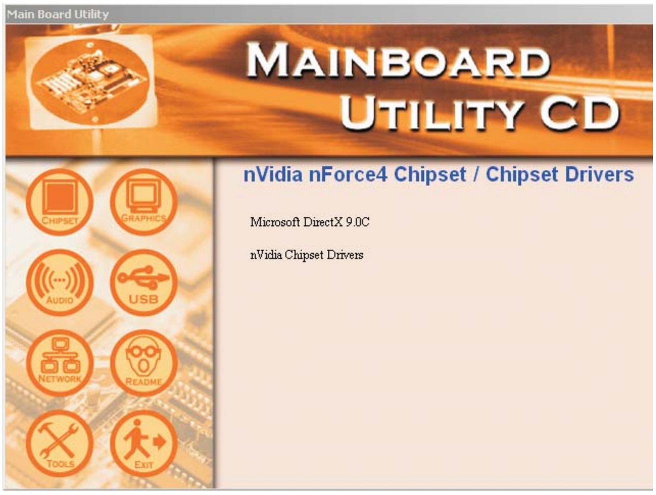


Important:
You must first install Microsoft DirectX 9.0C prior to installing any drivers.

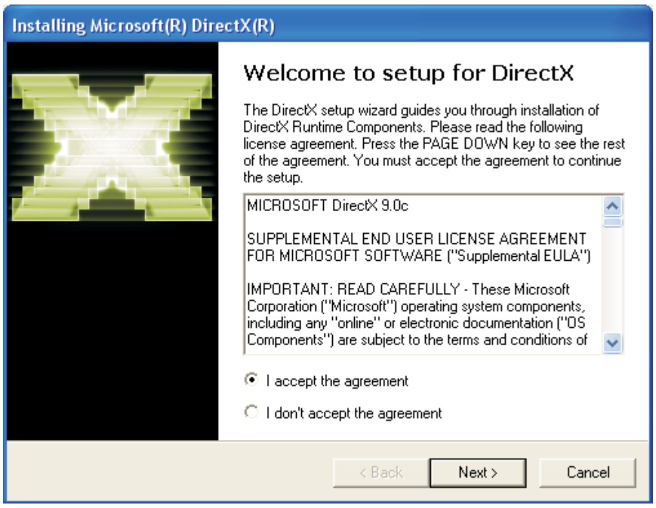
Microsoft DirectX 9.0C

When you insert the CD, the default menu that will appear is the Chipset Drivers menu. If in any case it is not, click the "CHIPSET" icon that is on the left side of the autorun screen.

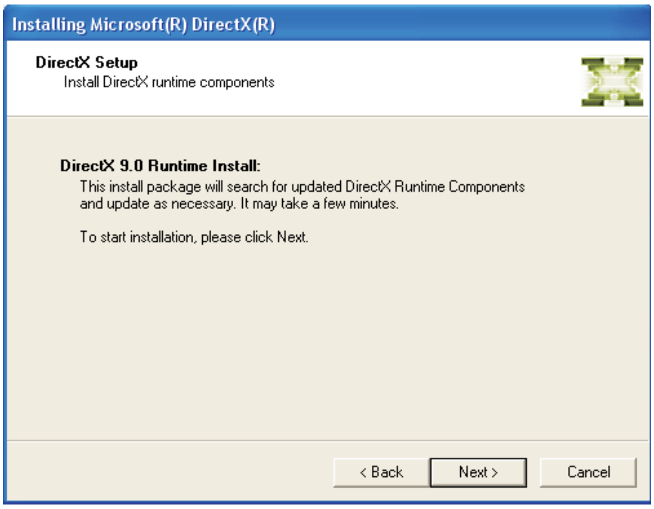
1. Click "Microsoft DirectX 9.0C" on the main menu.



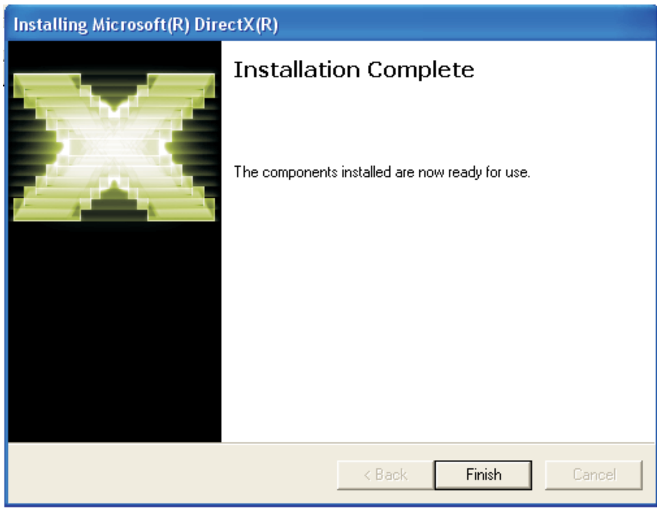
2. Click "I accept the agreement" then click Next.



3. You are now ready to install DirectX. Click Next.



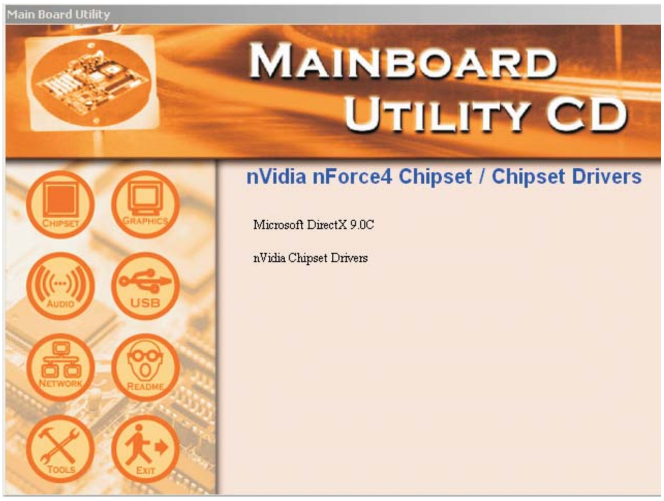
4. Click Finish. Reboot the system for DirectX to take effect.



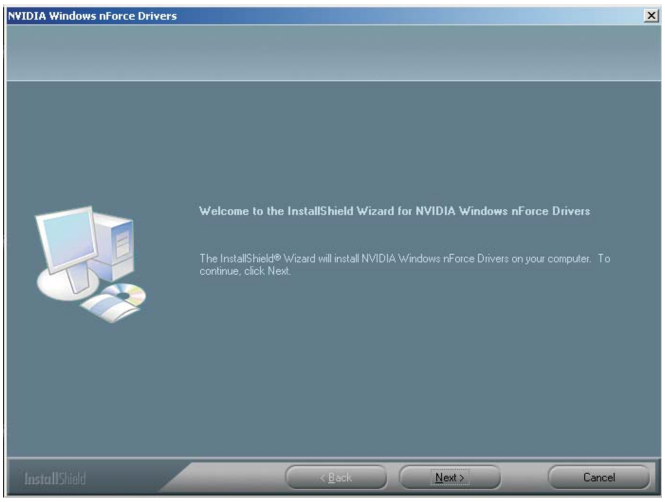
nVidia Chipset Drivers

On the left side of the autorun screen, click the "CHIPSET" icon.

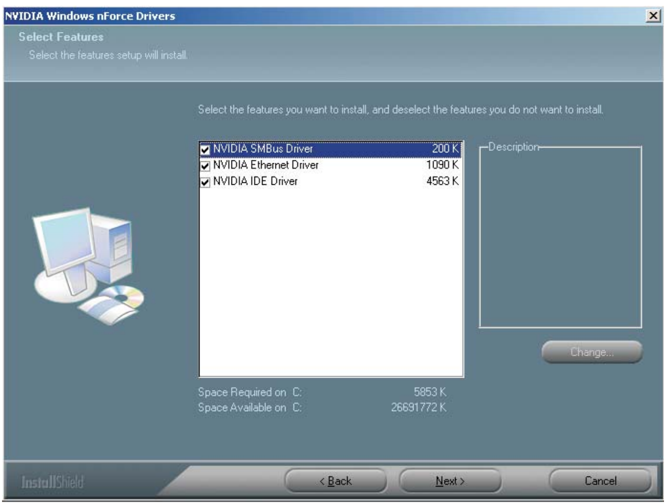
1. Click "nVidia Chipset Drivers" on the main menu.



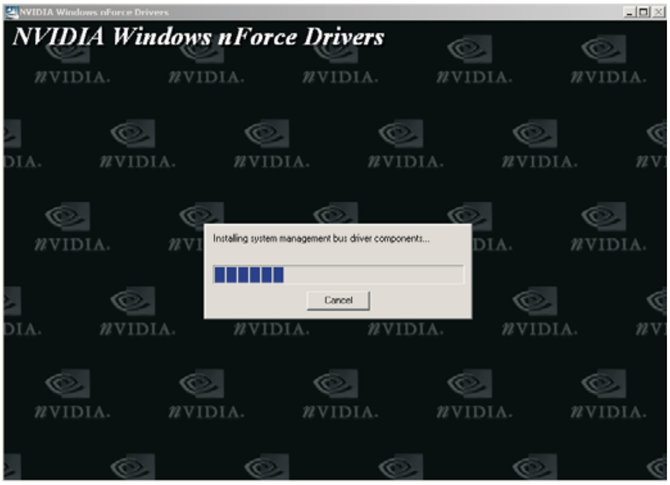
2. The installation wizard will install NVIDIA Windows nForce Drivers on your computer. Click Next to continue.



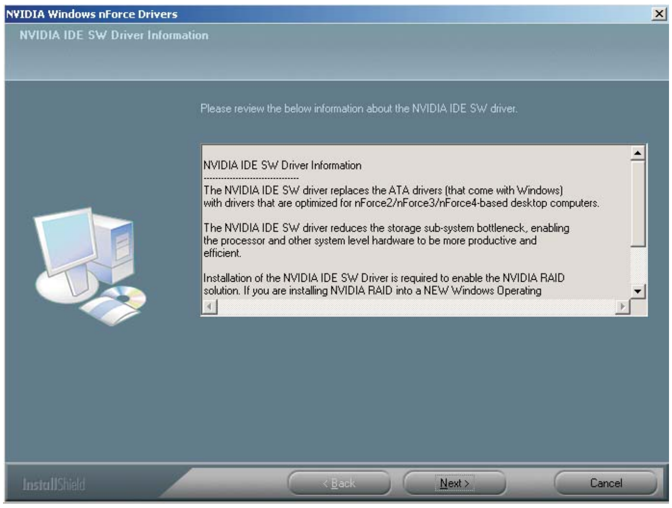
3. Select the drivers you want to install. The drivers will be installed automatically. Make sure you have selected "NVIDIA IDE Driver" because this driver will replace Windows ATA drivers enabling the processor and other system level hardware to be more productive and efficient. Click "Next" to continue.



4. Setup is currently installing the drivers.



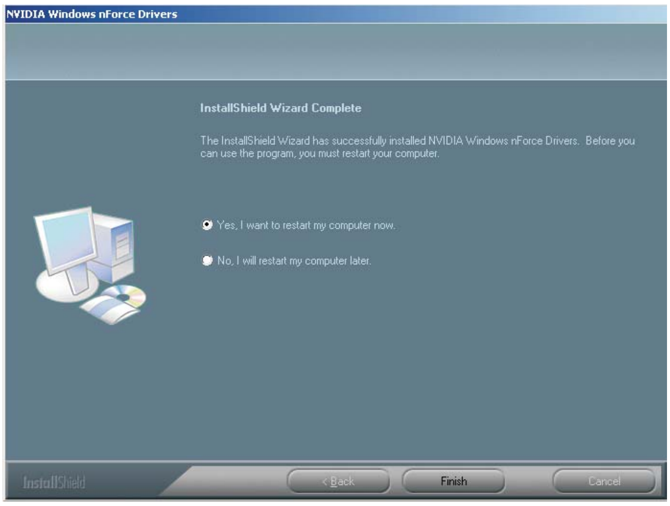
5. Read the information about the NVIDIA IDE software driver then click Next.



6. Follow the prompts on the screen to complete installation.

   Click "Yes, I want to restart my computer now" then click Finish.

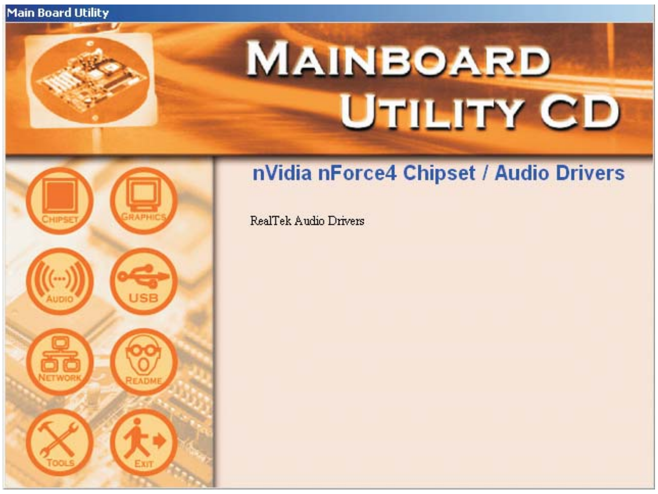
   Restarting the system will allow the new driver installation to take effect.



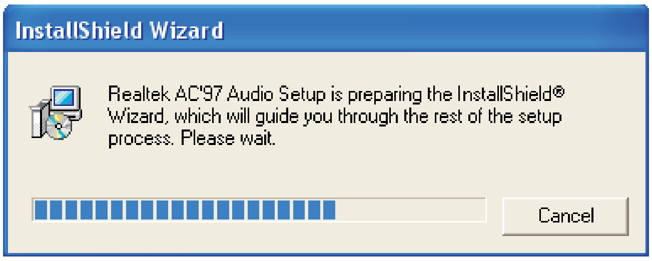
Realtek Audio Drivers

On the left side of the autorun screen, click the "AUDIO" icon.

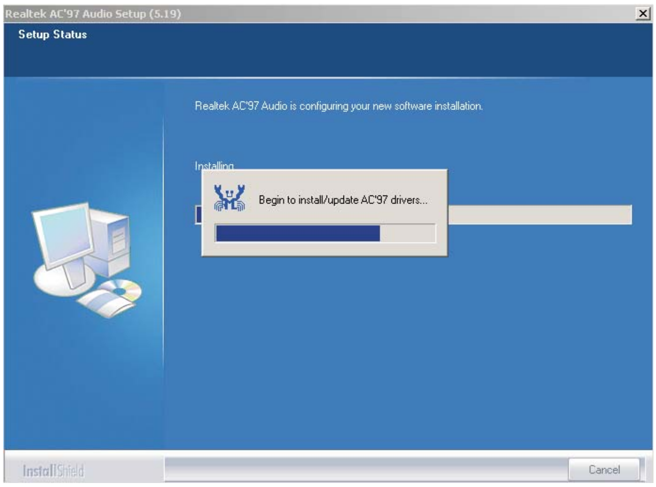
1. Click "Realtek Audio Drivers" on the main menu.



2. The installation wizard will extract the files needed to install AC97 audio.



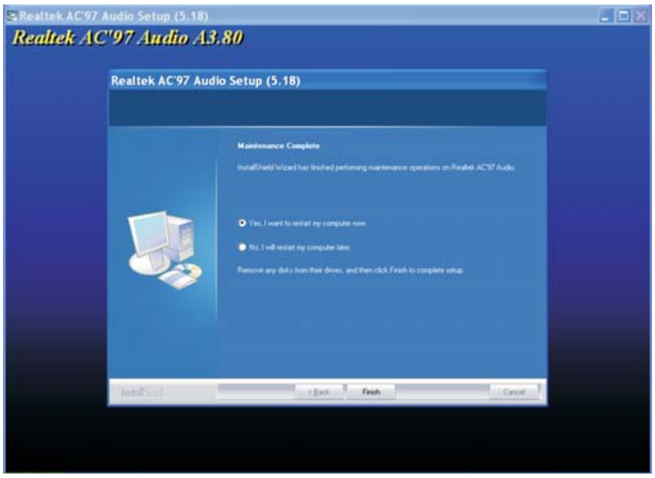
3. AC97 audio is intalling and configuring the new software installation.



4. Follow the prompts on the screen to complete installation.

   Click "Yes, I want to restart my computer now" then click Finish.

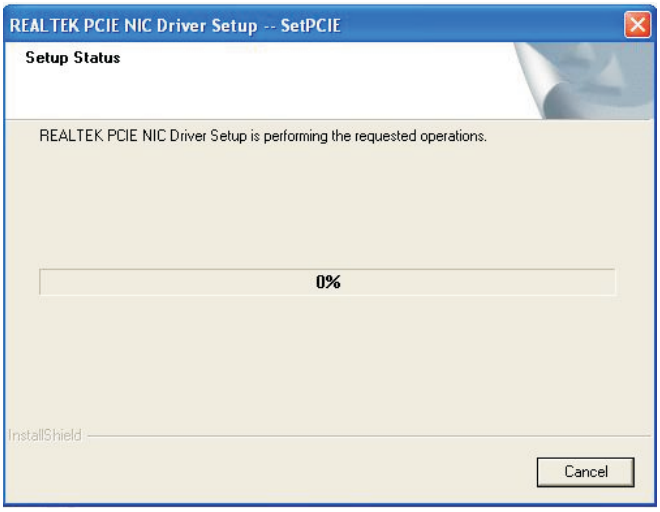
   Restarting the system will allow the new software installation to take effect.



Realtek LAN Drivers

On the left side of the autorun screen, click the "NETWORK" icon.

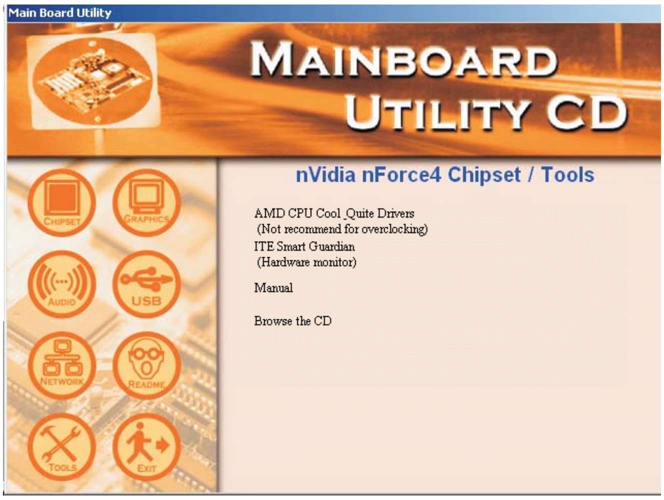
1. Click "Realtek LAN Driver" on the main menu.
2. Setup will prepare to install the driver.
3. Follow the prompts on the screen to complete installation.
4. Click Finish. Reboot the system for the driver to take effect.



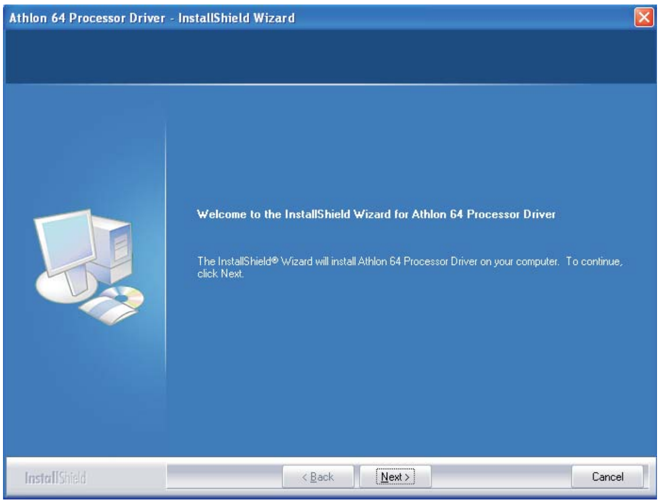
AMD CPU Cool'n'Quiet Drivers

On the left side of the autorun screen, click the "TOOLS" icon.

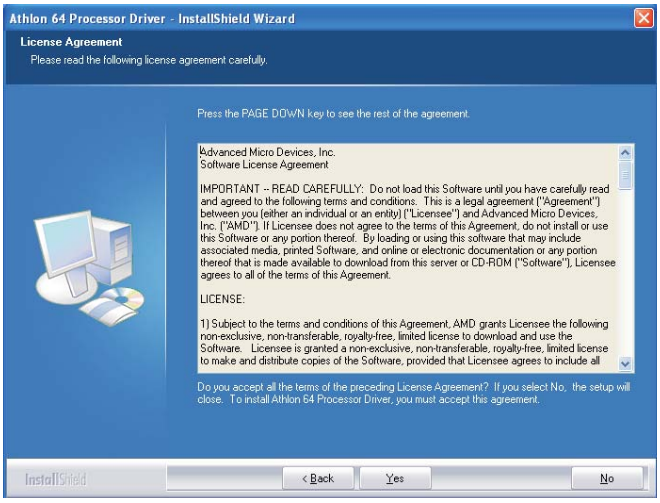
1. Click "AMD CPU Cool'n'Quiet Drivers" on the main menu.



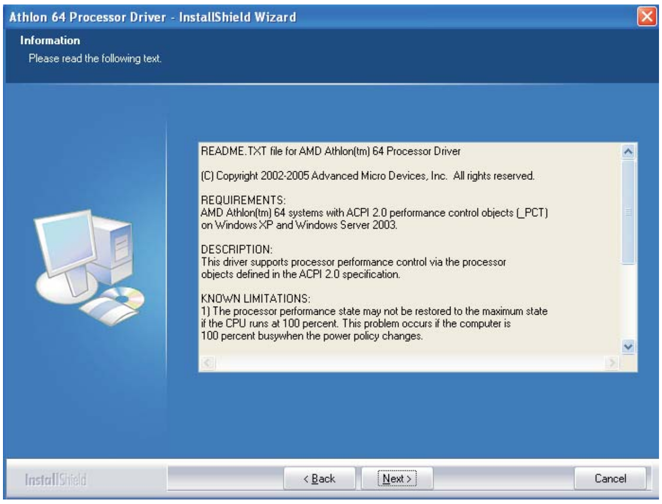
2. Setup is now ready to install and configure the driver. Click Next.



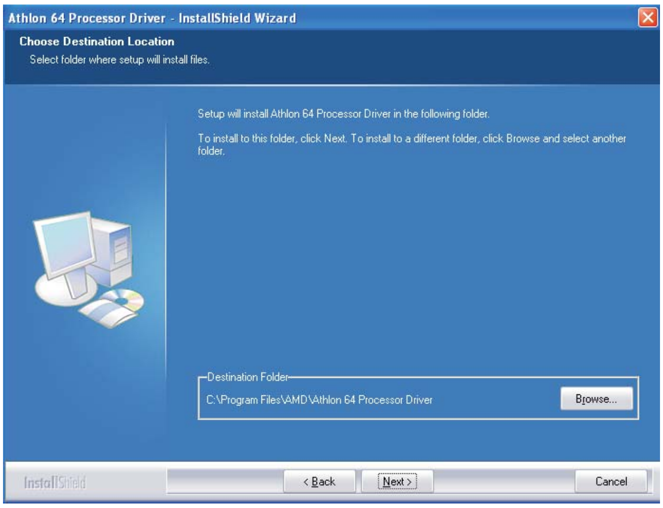
3. Read the license agreement then click Yes.



4. Go through the readme document for system requirements and installation tips then click Next.

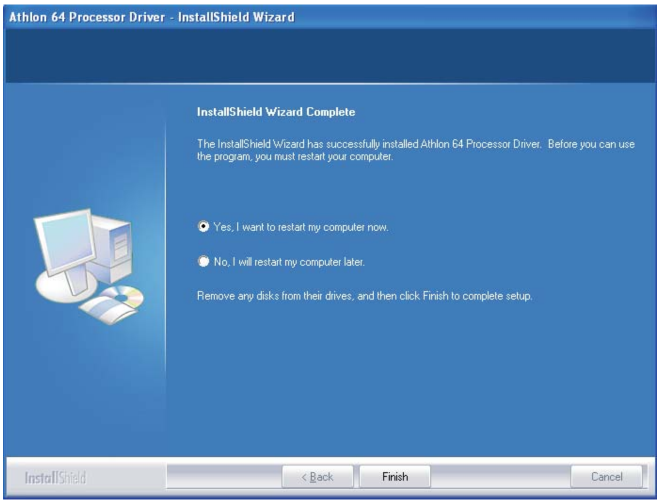


5. Click Next to install to the designated folder or click Browse to select another folder.



6. Click "Yes, I want to restart my computer now" then click Finish.

   Restarting the system will allow the new software installation to take effect.



Note:

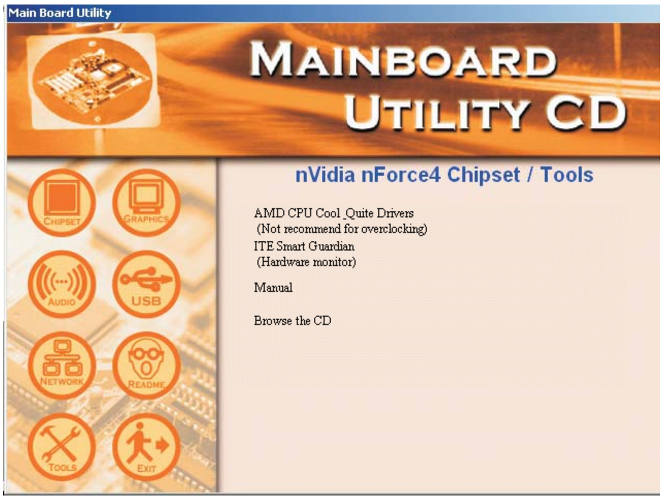
Refer to chapter 5 for more information about the Cool'n'Quiet Technology.

ITE Smart Guardian

The system board comes with the ITE Smart Guardian utility. This utility is capable of monitoring the system's temperature, fan speed, voltage, etc. and allows you to manually set a range (Highest and Lowest Limit) to the items being monitored. If the settings/values are over or under the set range, a warning message will pop-up. The utility can also be configured so that a beeping alarm will sound whenever an error occurs. We recommend that you use the "Default Setting" which is the ideal setting that would keep the system in good working condition.

On the left side of the autorun screen, click the "TOOLS" icon.

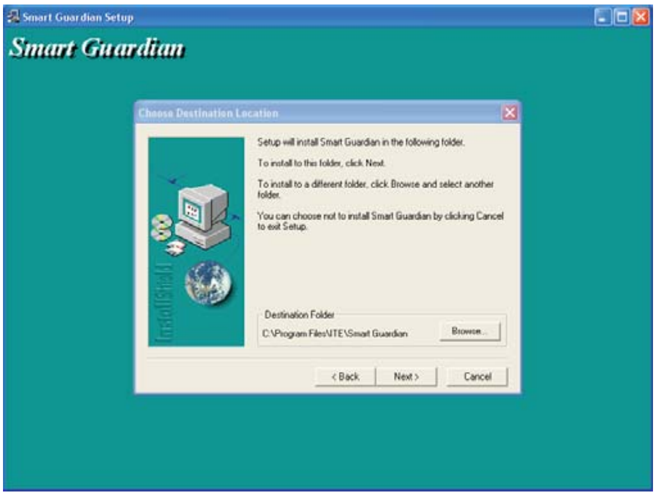
1. Click "ITE Smart Guardian" on the main menu.



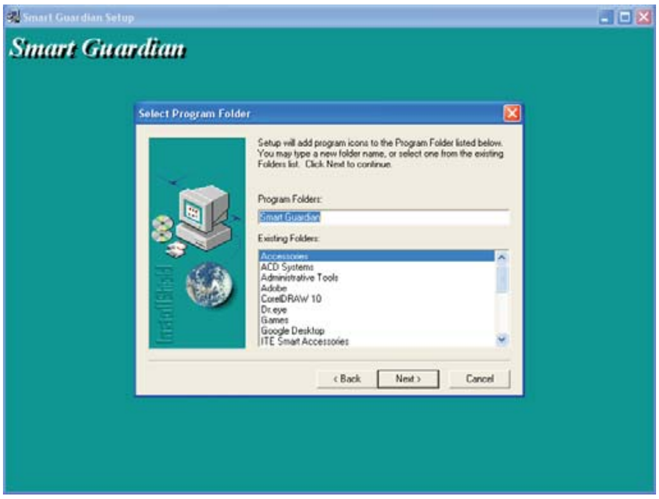
2. Setup will prepare the installation wizard.



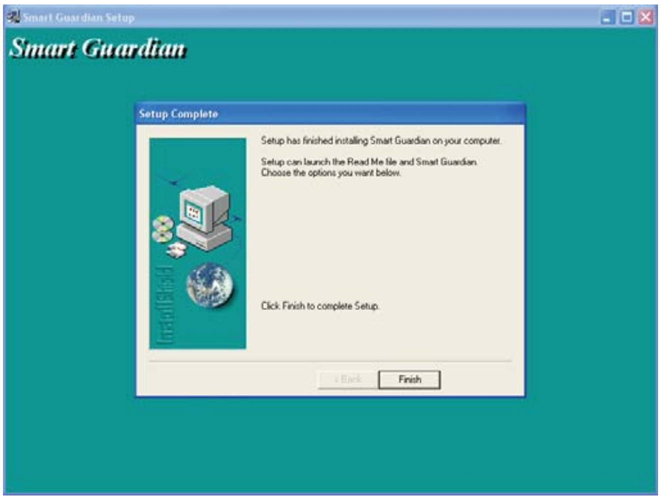
3. You are now ready to install Smart Guardian. Click Next to install or click Browse to select another folder.



4. Click Next to add the program icon to the Program Folder.



5. Click Finish. Reboot the system for the driver to take effect.



Intel USB 2.0 Drivers

The Intel chipset does not support USB 2.0 drivers for Windows® 98 SE and Windows® ME.

Windows® XP

If your Windows® XP CD already includes Service Pack 1, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 1, it is available for download at Microsoft's Windows Update website.

Windows® 2000

If your Windows® 2000 CD already includes Service Pack 4, the USB 2.0 driver will automatically install when you install the operating system. If the CD does not include Service Pack 4, it is available for download at Microsoft's Windows Update website.

Installation Notes

1. "Autorun" ONLY supports the Windows® 2000 and Windows® XP operating systems. If after inserting the CD, "Autorun" did not automatically start (which is, the Main Board Utility CD screen did not appear), please go directly to the root directory of the CD and double-click "Setup".

2. All steps or procedures to install software drivers are subject to change without notice as the softwares are occassionally updated. Please go to DFI's web site at "http://www.dfi.com/support1/download2.asp" for the latest version of the drivers or software applications.

Chapter 5 - Cool'n'Quiet Technology

Cool'n'Quiet Technology

The AMD Cool'n'Quiet™ technology allows the system to detect the CPU's tasks and utilization status. When the CPU's task slows down, the system effectively lowers power consumption by lowering its CPU speed and voltage, subsequently decreasing its noise level.

To enable the Cool'n'Quiet™ technology, the following settings are required.

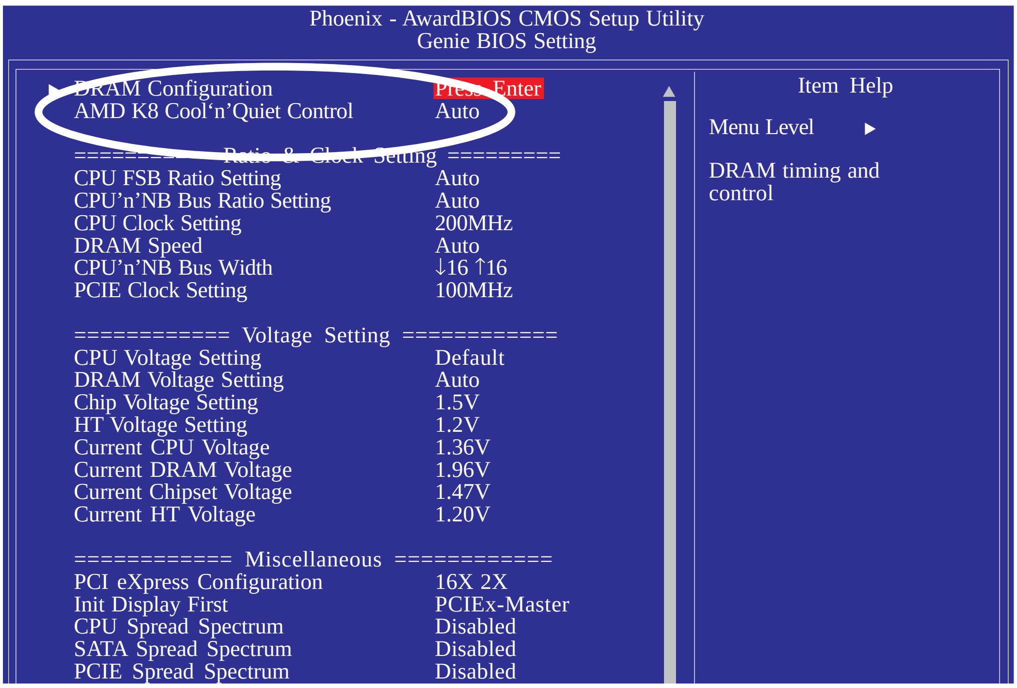
1. Enable Cool'n'Quiet™ in the BIOS.
2. Install the Cool'n'Quiet™ driver.
3. Configure Power Management in Windows.

Step 1: Enable Cool'n'Quiet™ in the BIOS

1. Power-on the system then press <Del> to enter the main menu of the BIOS.

2. Select the Genie BIOS Setting submenu then press <Enter>.

3. Set the "AMD K8 Cool'n'Quiet Control" field to Auto.



4. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

5. Type <Y> and press <Enter>.

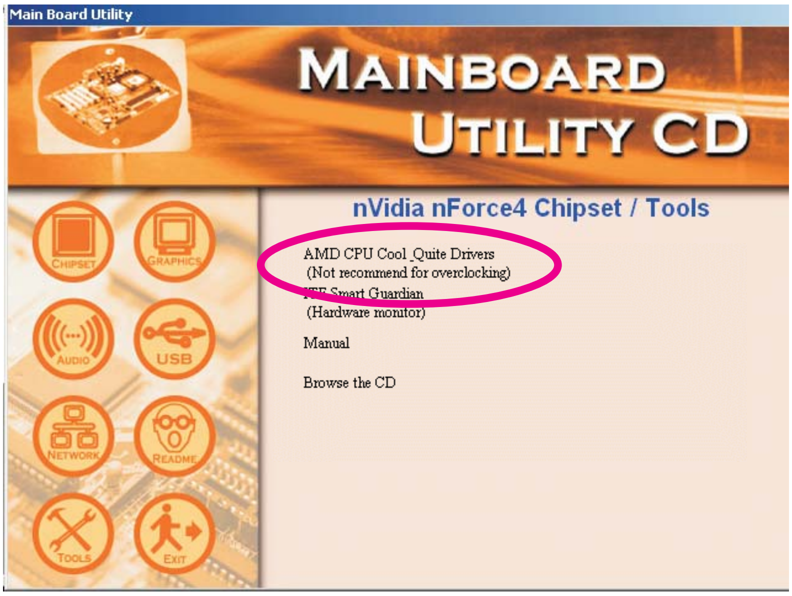
6. Reboot the system.

Install the Cool'n'Quiet™ Driver

1. Insert the provided CD into a CD-ROM drive.

2. On the left side of the autorun screen, click the "TOOLS" icon.

3. Click "AMD CPU Cool'n'Quiet Drivers" on the main menu.



4. Follow the prompts on the screen to complete the installation.

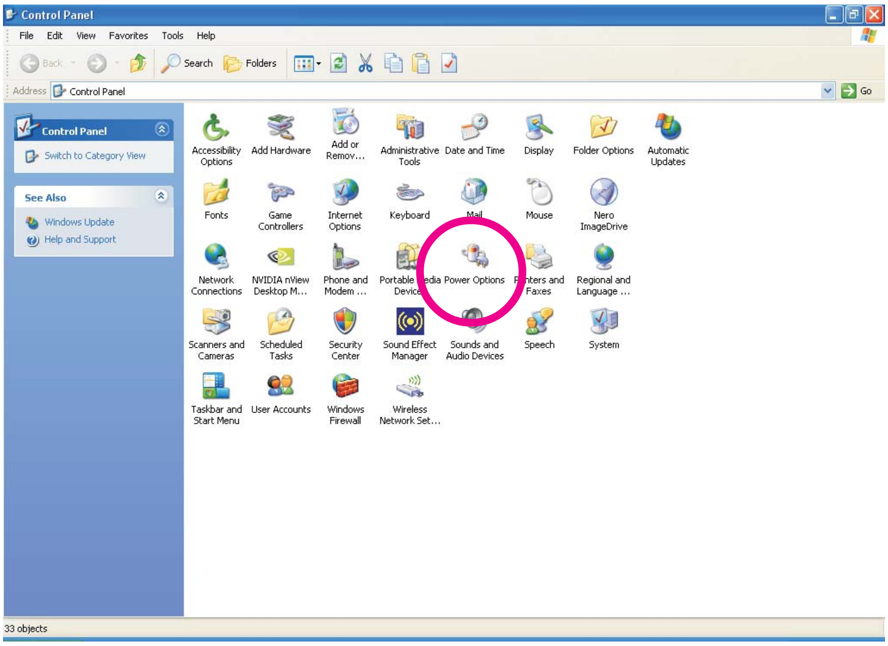
Note:

Refer to chapter 4 for details on installing the Cool'n'Quiet driver.

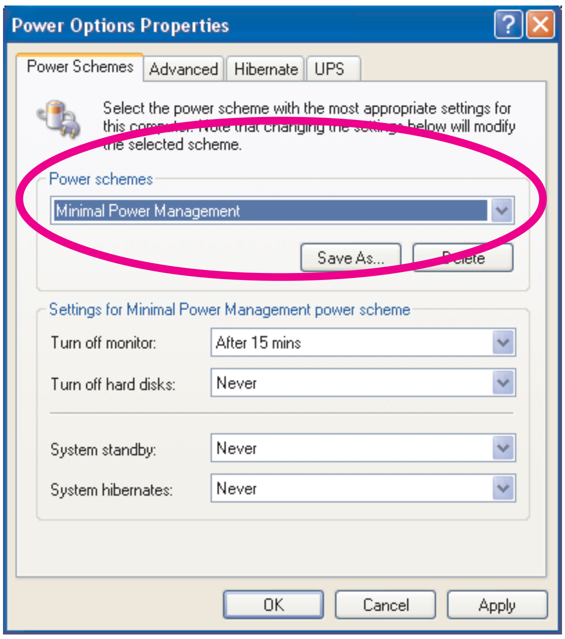
Step 3: Configure Power Management in Windows

1. On the Windows desktop, click Start then select Control Panel.

2. In Control Panel, double-click the Power Options icon.



3. In the Power Schemes tab, select Minimal Power Management under the Power schemes section then click OK.



Chapter 6 - RAID

The system board supports NVIDIA RAID (Redundant Array of Independent Disk) that allows RAID arrays spanning across 4 Serial ATA and Parallel ATA drives. It supports RAID 0, RAID 1, RAID 0+1 and JBOD.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

RAID 0 uses two new identical hard disk drives to read and write data in parallel, interleaved stacks. Data is divided into stripes and each stripe is written alternately between two disk drives. This improves the I/O performance of the drives at different channel; however it is not fault tolerant. A failed disk will result in data loss in the disk array.

RAID 1 (Mirroring Disk Array with Fault Tolerance)

RAID 1 copies and maintains an identical image of the data from one drive to the other drive. If a drive fails to function, the disk array management software directs all applications to the other drive since it contains a complete copy of the drive's data. This enhances data protection and increases fault tolerance to the entire system. Use two new drives or an existing drive and a new drive but the size of the new drive must be the same or larger than the existing drive.

RAID 0+1 (Striping and Mirroring)

RAID 0+1 is a combination of data striping and data mirroring providing the benefits of both RAID 0 and RAID 1. Use four new drives or an existing drive and three new drives for this configuration.

JBOD (Spanning)

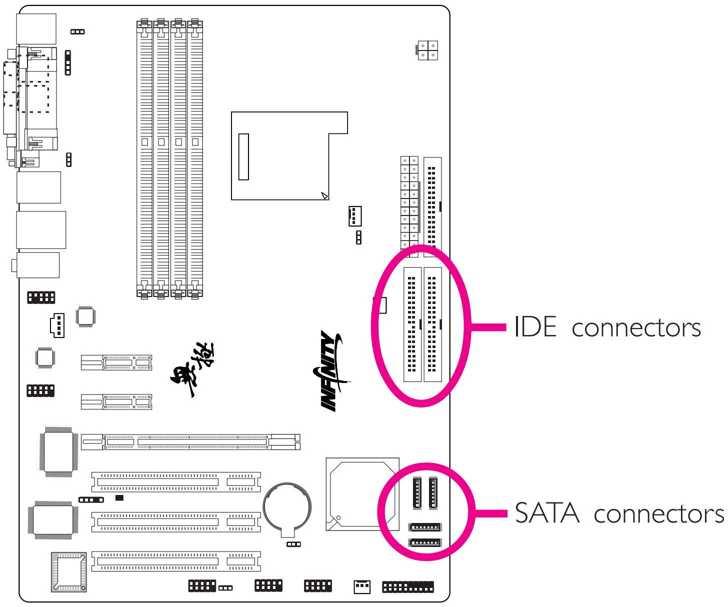
JBOD redundantly stores the same data on multiple disks that appear as a single disk on the operating system.

Settings

To enable the RAID function, the following settings are required.

1. Connect Serial/Parallel ATA drives.
2. Configure Serial/Parallel ATA in the Award BIOS.
3. Configure RAID in the NVRAID BIOS
4. Install RAID driver.

Step 1: Connect Serial/Parallel ATA Drives



Refer to chapter 2 for details on connecting the serial/parallel ATA drives.

Important:

1. Make sure you have installed the Serial/Parallel ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.

2. Treat the cables with extreme caution especially while creating RAID. A damaged cable will ruin the entire installation process and operating system. The system will not boot and you will lost all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

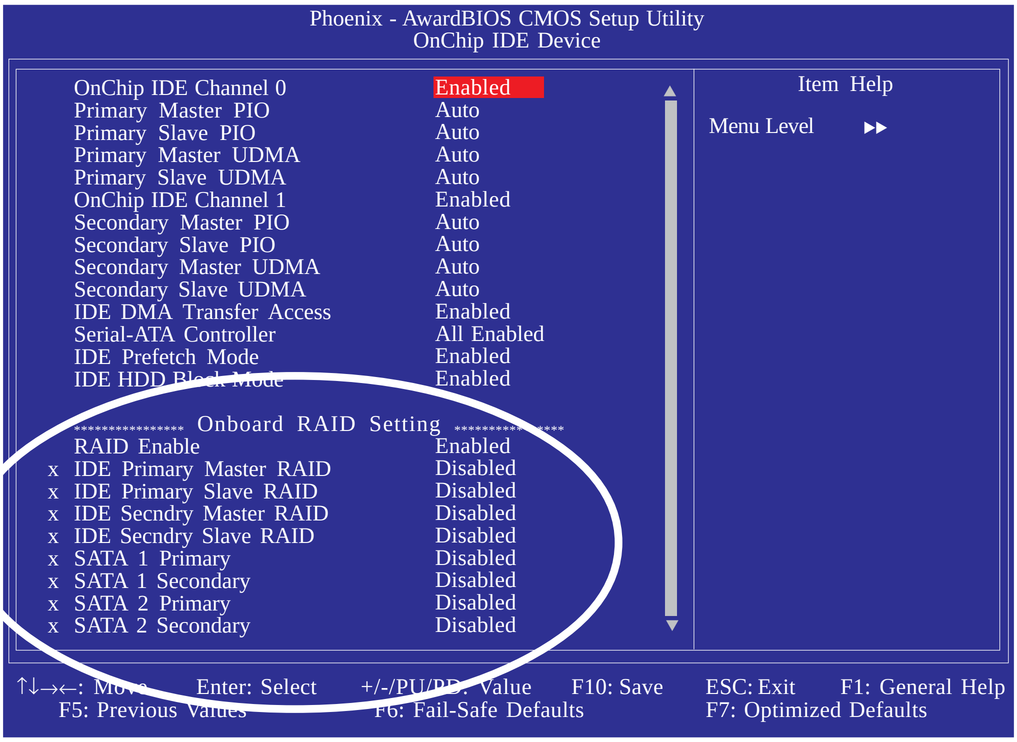
Step 2: Configure Serial/Parallel ATA in the Award BIOS

1. Power-on the system then press <Del> to enter the main menu of the Award BIOS.

2. Select the Integrated Peripherals submenu - "OnChip IDE Device" section of the BIOS.

3. Set the "RAID Enable" field to "Enabled".

4. Enable the RAID function of the Serial/Parallel ATA drives you want to configure as RAID.



5. Press <Esc> to return to the main menu of the BIOS setup utility. Select "Save & Exit Setup" and press <Enter>.

6. Type <Y> and press <Enter>.

7. Reboot the system.

Step 3: Configure RAID in the RAID BIOS

When the system powers-up and all drives have been detected, the NVRAID BIOS status message screen will appear. Press the <F10> key to enter the utility. The utility allows you to build a RAID system on Serial ATA drives and Parallel ATA drives. Press the <Ctrl> and <X> keys to exit the RAID BIOS.

Step 4: Install the RAID Driver

If you are in the process of installing Windows® XP or Windows® 2000 on RAID configured drives, you will need the provided RAID driver floppy diskette. If you are installing the driver on existing Windows® XP or Windows® 2000, install the corresponding RAID driver that is in the provided CD.

Installing NVRAID Driver While in the Process of Installing Windows® XP or Windows® 2000

The steps below will instruct you on installing the RAID driver while in the process of installing Windows® XP or Windows® 2000 on RAID configured drives.

1. Start Windows Setup by booting from the installation CD.
2. Press <F6> when prompted at the beginning of Windows setup.
3. Now the following steps are extremely crucial because there are 2 essential files that must be installed here. Press <S> to select "Specify Additional Device".
4. At this point you will be prompted to insert a floppy disk containing the RAID driver. Insert the provided RAID driver diskette.
5. Locate for the drive where you inserted the diskette then select "NVIDIA nForce4 ATA Controller". Press <Enter> to install the driver.
6. Now press <S> again to specify another device.

7. This time, select "NVIDIA nForce4 ATA RAID Class Controller". Press <Enter> to install the driver. Make sure both files have been installed or the setup will fail.

8. If you need to install other devices, please do so at this time otherwise please proceed to the next step.

9. Follow the prompts on the screen to complete installation.

10. After installing the operating system, if in any case necessary, create the hard drives' partition.

Appendix A - System Error Message

When the BIOS encounters an error that requires the user to correct something, either a beep code will sound or a message will be displayed in a box in the middle of the screen and the message, PRESS F1 TO CONTINUE, CTRL-ALT-ESC or DEL TO ENTER SETUP, will be shown in the information box at the bottom. Enter Setup to correct the error.

POST Beep

There are two kinds of beep codes in the BIOS. One code indicates that a video error has occured and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by three short beeps. The other code indicates that a DRAM error has occured. This beep code consists of a single long beep.

Error Messages

One or more of the following messages may be displayed if the BIOS detects an error during the POST. This list indicates the error messages for all Awards BIOSes:

CMOS BATTERY HAS FAILED

The CMOS battery is no longer functional. It should be replaced.

Caution:

Danger of explosion if battery incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.

CMOS CHECKSUM ERROR

Checksum of CMOS is incorrect. This can indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary.

DISPLAY SWITCH IS SET INCORRECTLY

The display switch on the motherboard can be set to either monochrome or color. This indicates the switch is set to a different

setting than indicated in Setup. Determine which setting is correct, either turn off the system and change the jumper or enter Setup and change the VIDEO selection.

FLOPPY DISK(S) fail (80)
Unable to reset floppy subsystem.

FLOPPY DISK(S) fail (40)
Floppy type mismatch.

Hard Disk(s) fail (80)
HDD reset failed.

Hard Disk(s) fail (40)
HDD controller diagnostics failed.

Hard Disk(s) fail (20)
HDD initialization error.

Hard Disk(s) fail (10)
Unable to recalibrate fixed disk.

Hard Disk(s) fail (08)
Sector Verify failed.

Keyboard is locked out - Unlock the key
The BIOS detects that the keyboard is locked. Keyboard controller is pulled low.

Keyboard error or no keyboard present
Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are being pressed during the boot.

Manufacturing POST loop
System will repeat POST procedure infinitely while the keyboard controller is pull low. This is also used for the M/B burn in test at the factory.

BIOS ROM checksum error - System halted
The checksum of ROM address F0000H-FFFFFH is bad.

Memory test fail
The BIOS reports memory test fail if the memory has error(s).

Appendix B - Troubleshooting

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.
2. All cables and power cords are tightly connected.
3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.
4. The monitor is turned on.
5. The display's brightness and contrast controls are adjusted properly.
6. All add-in boards in the expansion slots are seated securely.
7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.
2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.
3. Check that the video input cable is properly attached to the monitor and the system's display adapter.
4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.
2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.
3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.
2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.
3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.
2. The diskette may be write-protected. Use a diskette that is not write-protected.
3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.
4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.
2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Parallel Port

The parallel printer doesn't respond when you try to print.

1. Make sure that your printer is turned on and that the printer is on-line.
2. Make sure your software is configured for the right type of printer attached.
3. Verify that the onboard LPT port's I/O address and IRQ settings are configured correctly.
4. Verify that the attached device works by attaching it to a parallel port that is working and configured correctly. If it works, the printer can be assumed to be in good condition. If the printer remains inoperative, replace the printer cable and try again.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.
2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.
4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.
2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.
2. Check the jumper settings to ensure that the jumpers are properly set.
3. Verify that all memory modules are seated securely into the memory sockets.
4. Make sure the memory modules are in the correct locations.
5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.
6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.